



**PEOPLE' DEMOCRATIC REPUBLIC OF ALGERIA
MINISRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**

IBN KHALDUN UNIVERSITY-TIARET

FACULTY OF LETTERS AND LANGUAGES

DEPARTMENT OF ENGLISH

A Comparative Study of Artificial Intelligence and Machine Translation: Best Linguistic Practices for First Year English Master Student At ibn Khaldun University Tiaret.

**A Dissertation Submitted in Partial Fulfillment of the Requirements for Master's Degree
in Linguistics.**

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ACADEMIC YEAR

2023/2024

DEDICATION

«In the name of Allah, the most gracious, the most merciful»

We Would Like to Express Our Deep Recognition To ALLAH, To Give us Determination and strength to finish this work.

we owe a debt of gratitude to our loving parents for their understanding and endless love. for our parents who taught us the value of education and support us to achieve who we are today. for our mothers who are our source of encouragement and inspiration. To my cherished parents,

To our mentors and teachers, your guidance, wisdom, and mentor ship have formed our educational and private growth. Your ardor for information and determination to nurturing younger minds have stimulated us to try for excellence. This dissertation is a mirrored image of the helpful training discovered beneath-neath your tutelage.

ACKNOWLEDGEMENTS

The first thanks are to Allah who gave us the strength to conduct this research study, and for always having his blessing on us.

However, we extend our deepest appreciation to our supervisor **Dr. AYADA AMINE**, for his invaluable guidance, and constructive feedback throughout of this research journey in shaping this dissertation.

Our gratefulness for the members of the jury for accepting to proofread and examine our research paper.

And our heartfelt appreciations to our family for their unwavering support, love, and encouragement.

Additionally, we are glad to our university IBN KHALDOUN for providing the resources and conducive environment necessary for the completion of this dissertation.

Lastly, we would like to express our pleasure to all those individuals who participated in interviews, surveys, or otherwise contributed to this research. Their willingness to share their experiences and perspectives has been invaluable.

Without the support and encouragement of them, this dissertation would not have been possible.

In sum, our work is a testimony to the collective effort, and collaboration of all the ones referred to above, everyone has performed a completely unique and useful function in shaping the final results of researchers, and for that, we're forever gratified.

LIST OF ABBREVIATIONS

AGI: Artificial General Intelligences.

AI: Artificial Intelligence.

ALPAC: The Automatic Language Processing Advisory Committee.

ANI: Artificial Narrow Intelligence's.

BPE: Byte Pair Encoding.

CKY: Cocke Kasama Younger.

CNF: Chomsky Normal Form.

GNMT: Google`s Neural Machine Translation.

HLP: Herbal Language Processing.

KBMT: Knowledge Base Machine Translation.

LSTM: Language Statistical Machine Translation.

MIT: Massachusetts Institute of Technology.

ML: Machine Learning.

MT: Machine Translation.

MTPE: **MT:** Machine translation, **PE:** Post-Editing.

NMT: Neural Machine Translation.

RB: Rule-Based.

RBMT: Rule-Based Machine Translation.

RNN: Recurrent Neural Networks.

SKBI: Segment Asi Kalima Bahasa Indonesia.

SMT: Statistical Machine Translation.

SMT: Statistical Machine Translation.

USA: United State America.

VPA: Virtual Personal Assistants.

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Abstract

This study explores the comparative software of Artificial Intelligence (AI) and Machine Translation (MT) technology for boosting scholar gaining knowledge of and language acquisition. As academic environments come to be more and more digital, AI-pushed equipment together with customized gaining knowledge of systems, chatbots, and superior language fashions are revolutionizing the methods college students engage with content. Machine Translation, a specialized software of AI, has visible speedy improvements with equipment like Google Translate, Deeply, and AI-powered fashions, imparting college students immediate, albeit imperfect, translations. The studies examine the strengths, limitations, and capacity integration of AI and MT equipment in academic contexts. Through case studies, consumer feedback, and overall performance evaluation, the examine highlights AI's adaptability in supplying customized gaining knowledge of studies whilst contrasting MT's position in breaking language barriers. The findings endorse that whilst AI gives broader packages for scholar support, MT stays a precious asset for language gaining knowledge of and accessibility. This comparative evaluation outlines first-rate practices for incorporating those technology in education, presenting frameworks that stability innovation with pedagogical effectiveness.

GENEARL INTRODUCTION

GENERAL INTRODUCTION

In today's digital age, the field of Artificial Intelligence has made significant advancements, particularly in the area of language processing. That interconnected global, where in communicate.

is aware of no borders, the capacity to translate languages as it should be and efficaciously is greater essential than ever. This project is an increasing number of being dealt with the aid of using superior technology like Artificial Intelligence (AI) and Machine Translation (MT). For college students delving into the charming global of language and technology, information the variations and similarities among those fields is not always handiest intellectually stimulating however additionally probably career-defining.

However Artificial intelligence is a filed in computer a science whose main goal is to develop system capable of learning and thinking similar to humans this is done through the use of complex algorithm in different models allowing computers to process information recognize patterns and even make decisions based on input data. And it is Imagine machines that could think, learn, and make choices like humans. That's the essence of AI. It's the brainpower at the back of clever assistants like Siri and Alexia, the algorithms that propose films on Netflix, and the intelligence using self-sufficient vehicles. In the area of language, AI allows computer systems understand, process, and generate human language, main to breakthroughs in translation, herbal language understanding, or even innovative writing.

AI and machine translation, can be widely applied in many different fields such as image recognition, natural language, automation, healthcare finance and many other fields for example.

AI systems can automatically classify emails translate texts and words. Both are revolutionizing our everyday lives.

AI and machine translation are often used interchangeably but they are actually quite different .AI is like the big umbrella that covers developing intelligent systems capable of performing tasks that typically require human intelligence like understanding languages. Machine translation on the other hand is a subset of AI that focuses on developing algorithms and models that allow computers to learn.

The third chapter is concerned with the methodology and data analysis of the test, the classroom observation and teachers review. This chapter is the practical part of this research,

it seeks also to answer the research questions by confirming or disconfirming the research hypotheses, and includes with the research results.

Finally, some suggestion and recommendation are provided hopefully, this will help the ESL learners and uses with Undertakes a complete comparative observe to discover the most advantageous usage of AI and MT to beautify scholar gaining knowledge of experiences, facilitate cross-cultural communication, and foster educational success.

Statement of the problem:

AI is becoming an important part of everyday it brings many conveniences and positive impacts to society however AI is a doubled edged sword because it has taken the world by storm and it also comes with potential drawbacks that we must be aware of

-the misuse of personal data lead students to identity theft

-the lack of emotional intelligence. In AI lacks emotional understanding empathy and moral judgement making it challenging to replace human interactions in students' life.

linguistic college students face the twin mission of studying various languages even as navigating the complexities of cross-cultural communication. To cope with those challenges, educators and establishments are more and more turning to technology, in particular Artificial Intelligence (AI) and Machine Translation (MT), as capacity gear to decorate linguistic studying studies. However, the most effective usage of AI and MT in assisting the academic desires of linguistic college students stays a place of ongoing inquiry and debate. While AI gives the promise of customized studying studies and adaptive remarks tailor-made to person scholar desires, MT enables the interpretation of texts and conversations throughout linguistic boundaries, offering get entry to a wealth of multilingual resources. Despite those capacity benefits, questions persist concerning the comparative effectiveness, limitations, and high-quality practices related to the mixing of AI and MT in linguistic education.

Research Question:

Main Question:

1. How do Artificial Intelligence (AI) and Machine Translation (MT) defer language mastering outcomes, pedagogical practices, and cultural know-how among students?"

Sub Questions:

1. Are students going to choose AI or MT for learning languages?
2. AI and MT are getting too advanced how it will turn on students?

Hypotheses:

Main Hypotheses:

1. yes, translation services market in our modern world demands a higher performance of competent professional interpreters capable of performing high-quality simultaneous interpreting using innovative technological solutions.
2. the use of (AI) and (MT) technologies in educational settings could have a constructive impact on the development of key competencies of a future translator.

Aim of Study:

Through the present research, we aim to conduct a comparative study between AI and machine translation, for student linguistic analysis, and as student for English we examine ambitions, to offer treasured insights into the modern kingdom of AI and MT in translation, tell decision-making procedures for choosing suitable technologies, and manual destiny studies, and improvement efforts on this field. The intention of the comparative takes a look, at of Artificial Intelligence (AI) and Machine Translation (MT) for students, linguistically optimized, is to discover and determine the efficacy, implications, and capacity packages of those technology. In language gaining knowledge of and linguistic development however, is analyses and investigated the effect and effectiveness of Artificial Intelligence (AI) and Machine Translation (MT), technology with inside the context of language learning Specifically. Investigate how AI and MT technology may be incorporated, into language mastering curricula to beautify pedagogical practices, adapt to various mastering styles, and sell engagement and lively participation.

Construction of dissertation:

The present dissertation, consists of three main chapters, the first two chapter are the theoretical part, and the third chapter is practical part. The first chapter is devoted for artificial intelligence, it deals with definition and some element, that has a relationship with artificial intelligence, such as types of AI and challenges and limitation of AI, future trends ,however in the second chapter is concerned with the machine translation(MT) ,we talk about the application how its work with machine translation and types ,how does the Machine Translation and Human Translators collaborate .The third chapter concerns, the methodology and the analysis collect data by comparing and analyzing between of AI and Machine translation.

Chapter one
ARTIFICIAL INTILIGENCE

Introduction

Artificial Intelligence is becoming an important of everyday life bring many conveniences and positive impact to society, it is considered as one of the newest domains in science and engineering. However artificial is double-edged sword and it is considered a groundbreaking technology, in the century significantly impacting industries, shaping economies and changing how we engage with technology and our environment.

This chapter will be a general overview about artificial Intelligence dealing with certain important related elements. First, we deal with a brief definition and historical about Artificial Intelligence. then we explain the types and application of it. after we move to the Challenges and Limitation and Future tends of artificial intelligence.

1.1. Definition of Artificial intelligence

For the most people, «Artificial intelligence involves creating machines, advanced computer programs.”. **John McCarthy** introduced the term " intelligence" back, in 1956, but it took to evolve as it demanded heavy computing power. Artificial is the ability of a computer system to mimic human cognition and behavior, it can be widely applied in many different fields and its systems that makes computers. based machines think and act like human .as it is a not a new term.

Nile J. Wilson said that:

" The Artificial Intelligence activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment. "

1.2. Background of Artificial Intelligence

Artificial Intelligence (AI) has emerged as one of the maximum trans-formative technologies of the twenty first century, revolutionizing industries, societies, and economies worldwide. However, the roots of AI hint returned to historical times, with early principles of smart machines and automation. Here`s a complete history at the evolution of AI, from its early conceptualizations to its contemporary-day applications.

1.2.1. The History of Artificial Intelligence:

The history of artificial intelligence began out in 1950`s while researchers started out exploring programmers and machines that might simulate human intelligence. the purpose of the researcher is to create structures that might suppose examine manner resolve issues precisely like human. over the last years synthetic intelligence has long gone through one-of-a-kind stages, experiencing each development setbacks.

1.2.2. Early foundations (Antiquity-20th century)

Artificial begins with human-like intelligence dates back to ancient myths and legends, including tales of mechanical beings crafted by ancient civilization.

The formal discussion on AI began in the 20th century, with mathematicians, philosophers, and science fiction writers exploring the possibility of creating intelligent machines.

1.2.3.the birth of AI (1950s)

The term artificial intelligence become coined in 1956 on the Dartmouth conference, in which researchers convened to talk about the capacity of making machines able to clever behavior. but in the course of on this time, pioneers like Alan Turing, John McCarthy, Marvin Minsky, and different laid the basis for AI through devolving key concept, which include the Turing check and the primary AI programming language, Lisp.

1.2.4. The early concept of AI:

In the early concept of artificial intelligence ,focused on developing machines that might show off wise behavior .they explored areas like trouble-fixing and symbolic reasoning.one of the earliest principles became the concept of well-known trouble solver , which aimed to broaden an application able to fixing any trouble that might be defined in formal language .any other early idea became the good judgment theorist ,which aimed to show mathematical theorems the usage of the usage of logical rules. These early thoughts laid the inspiration for similarly development in synthetic intelligence research. It's charming to peer how those principles have advanced over time.

1.2.5Milestones in artificial intelligence Development:

The improvement of the perceptron set of rules withinside the overdue 1950s, the time period synthetic intelligence is coined through John McCarthy on the Dartmouth convention in 1956.early Artificial intelligence applications just like the common-sense theorist and preferred hassle solver are developed. In Sixties is the improvement of professional structures begins,

with applications like Deandra for molecular biology and MYCIN for clinical diagnosis. However, In Nineteen Seventies the primary synthetic intelligence wintry weather occurs, a duration of decreased investment and hobby in synthetic intelligence studies due.

To over-hyped expectancy and underwhelming results. However, at some stage in this time, rule-primarily based totally professional structures stay developed.

In 1980s on this time the second synthetic intelligence wintry weather starts off-evolved as investment declines and synthetic intelligence and synthetic intelligence studies struggles to stay as much as excessive expectancy set with inside the preceding decade. However, studies in neural networks and device gaining knowledge of starts off-evolved to benefit traction.

In 1990 in this era the emergence of the arena huge net offers great quantities of records for Artificial intelligence. Device gaining knowledge of approach which include which include aid vector machines and Bayesian networks come to be more and more popular.

in 2000s, the breakthroughs in deep gaining knowledge of, unique with the broaden of convolution neural networks, cause big development in pc imaginative and prescient and herbal language processing tasks.

In 2010s, Deep gaining knowledge of procedures dominate many manmade intelligence applications, main to breakthroughs in regions like photograph recognition, speech recognition, and independent vehicles. the upward push of huge records and upgrades in computational electricity similarly boost up development in synthetic intelligence.

Table 1.1 Milestones in the development of AI from Godel to today.

1931	The Austrian Godel Kurt shows that in first-order predicate logic all true statements are derivable [Göd31a]. In higher-order logic's, on the other hand, there are true statements that are unprofitable [Göd31b]. (In [Göd31b] Godel showed that predicate logic extended with the axioms of arithmetic is incomplete.)
1937	Alan Turing points out the limits of intelligent machines with the halting problem [Tur37].

1943	McCullough and Pitts model neural networks and make the connection to propositional logic.
1950	Alan Turing defines machine intelligence with the Turing test and writes about learning machines and genetic algorithms [Tur50].
1951	Marvin Minsky develops a neural network machine. With 3000 vacuum tubes he simulates 40 neurons.
1955	Arthur Samuel (IBM) builds a learning checkers program that plays better than its developer [Sam59].
1956	McCarthy organizes a conference in Dartmouth College. Here the name Artificial Intelligence was first introduced
Newell and Simon of Carnegie Mellon University (CMU) present the Logic Theorist, the first symbol-processing computer program [NSS83].	
1958	McCarthy invents at MIT (Massachusetts Institute of Technology) the high-level language LISP. He writes programs that are capable of modifying themselves.
1959	Gelernter (IBM) builds the Geometry Theorem Prover.
1961	The General Problem Solver (GPS) by Newell and Simon imitates human thought [NS61].

1963	McCarthy founds the AI Lab at Stanford University
1965	Robinson invents the resolution calculus for predicate logic [Rob65] (Sect. 3.5).
1966	Weinbaum's program Eliza carries out dialog with people in natural language [Wei66] (Sect. 1.1.2)
1969	Minsky and Papert show in their book Perceptron's that the perceptron, a very simple neural network, can only represent linear functions [MP69] (Sect. 1.1.2).
1972	<p>French scientist Alain Colmerauer invents the logic programming language PROLOG (Chap. 5).</p> <ul style="list-style-type: none"> British physician de Dombal develops an expert system for diagnosis of acute abdominal pain [dDLS+72]. It goes unnoticed in the mainstream AI community of the time (Sect. 7.3).
1976	Shurtleff and Buchanan develop MYCIN, an expert system for diagnosis of infectious diseases, which is capable of dealing with uncertainty (Chap. 7)
1981	Japan begins, at great expense, the "Fifth Generation Project" with the goal of building a powerful PROLOG machines
1982	R1, the expert system for configuring computers, saves Digital Equipment Corporation 40 million dollars per year [McD82].

1986	R1, the expert system for configuring computers, saves Digital Equipment Corporation 40 million dollars per year [McD82].
1990	Pearl [Pea88], Cheeseman [Che85], Whittaker, Spiegelhalter brings probability theory into AI with Bayesian networks (Sect. 7.4). Multi-agent systems become popular.

Table 1.1 (continued)

1992	Treasures TD-gammon program demonstrates the advantages of reinforcement learning.
1993	Worldwide RoboCup initiative to build soccer-playing autonomous robots [Roba].
1995	From statistical learning theory, Vapnik develops support vector machines, which are very important today.
1997	IBM's chess computer Deep Blue defeats the chess world champion Gary Kasparov.
	First international RoboCup competition in Japan.
2003	The robots in RoboCup demonstrate impressively what AI and robotics are capable of achieving.
2006	Service robotics becomes a major AI research area

2009	First Google self-driving car drives on the California freeway
2010	Autonomous robots begin to improve their behavior through learning
2011	IBM's "Watson" beats two human champions on the television game show "Jeopardy!". Watson understands natural language and can answer difficult questions very quickly (Sect. 1.4).
2015	Google self-driving cars have driven over one million miles and operate within cities. Daimler premieres the first autonomous truck on the Autobahn
	Deep learning (Sect. 11.9) enables very good image classification.
	Paintings in the style of the Old Masters can be automatically generated with deep learning. AI becomes creative!
2016	The Go program AlphaGo by Google DeepMind [SHM+16] beats the European champion 5:0 in January and Korean Lee Sedol, one of the world's best Go players, 4:1 in March. Deep learning techniques applied to pattern recognition, as well as reinforcement learning and Mo

2.Types of Artificial intelligences:

Artificial Intelligence may be divided in diverse types, there are particularly kinds of predominant categorization that are primarily based totally on skills and primarily based totally on functionally of AI. Following is waft diagram which give an explanation for the types of AI.

2.1. Narrow Artificial Intelligence vs General Artificial Intelligence:

2.1.1. Narrow artificial intelligences (weak AI):

Narrow AI is a kind of AI that's capable of carry out a devoted venture with intelligence. The maximum not unusual place and presently to be had AI is Narrow artificial intelligences withinside the international of Artificial Intelligence. Narrow AI can't carry out past its subject or limitations, as it's miles handiest skilled for one precise venture. Hence, it's also termed as susceptible artificial intelligences. Narrow AI can fail in unpredictable methods if it is going past its limits. Apple Sirias an amazing instance of Narrow AI, however it operates with a confined pre-described variety of functions. IBM's Watson supercomputer additionally comes beneath Neath Narrow AI, because it makes use of an Expert gadget method blended with Machine mastering and herbal language processing. Some Examples of Narrow AI are gambling chess, buying pointers on e-trade site, self-riding cars, speech recognition, and photograph recognition.

Artificial Narrow intelligences is constrained to a slender area, addressing an unmarried problem. These machines excel at an unmarried task, signifying slender AI or susceptible AI, in particular termed Artificial Narrow Intelligence (ANI). While susceptible AI and slender AI are synonymous, they constitute the early level of synthetic intelligence. Currently, AI has developed past slender AI, with a focal point on robust AI. Weak AI can also additionally lack the ability for simultaneous duties however achieves tremendous accuracy in its unique function. While it can't recognize reasons, it efficiently handles monotonous duties, presenting alleviation from repetitive work. Here are ten acquainted and famous examples illustrating the various programs of Narrow AI:

a-Virtual Personal Assistants (VPAs): Voice-activated digital assistants like Siri, Google Assistant, and Alexa exemplify Narrow AI through comprehending and responding to consumer instructions inside predefined domains.

b- Recommendation Systems: Platforms like Netflix and Amazon hire Narrow AI to research consumer choices and behaviors, supplying customized content material recommendations, from films to products.

c-Chatbots: Customer carrier chatbots, including the ones on web sites or messaging systems, use Narrow AI to apprehend and reply to consumer queries, presenting immediately assistance.

d-Facial Recognition: Security structures and phone functions like Face ID make use of Narrow AI to pick out and authenticate people primarily based totally on facial functions.

e- Speech Recognition: Applications like speech-to-textual content offerings, determined in transcription software program or voice assistants, hire Narrow AI to transform spoken phrases into written textual content accurately.

f-Autonomous Vehicles: Narrow AI performs an important function withinside the improvement of self-using cars, letting them navigate precise environments and reply to real-time site visitors' conditions.

g-Email Filtering: Spam filters in electronic mail offerings make use of Narrow AI algorithms to differentiate among true and junk mail messages, improving the general electronic mail experience.

h-Language Translation: Services like Google Translate leverage Narrow AI to interpret and translate textual content among more than one language, facilitating international communication.

I-Image Recognition: Applications in social media systems use Narrow AI for photograph recognition, mechanically tagging humans and gadgets in photos.

j- Medical Diagnostics: Narrow AI contributes to clinical analysis through reading clinical imaging data, helping withinside the detection of abnormalities and sicknesses with excessive precision.

2.1.2. General Artificial Intelligence (Strong AI):

General AI It refers to such form of intelligence which may perform any intellectual task with efficiency same as Human. That is the reason in the back of, total AI to create one system that can be smarter and think like a human on it does help. But today no gadget is come beneath the Neath trendy AI which might able to execute any mission as exactly as people. In reality

the global researchers are focused on developing machines with General AI. Because systems with modern AI are still in research and it will take a lot of efforts and time to develop such. Nonetheless, the ultimate desire of many researches is to upscale well-known AI (AGI or narrow AI) towards a notation that possesses the ability to recognize and carry out an extensive variety of highbrow duties akin to human intelligence. Picture wearable gadgets prepared with a Fuzzy Mood Enhancement System. These gadgets might use fuzzy good judgment to investigate numerous biometric and environmental elements to gauge the user`s mood. In response, the wearables should generate personalized mood-boosting suggestions, which include recommending uplifting music, adjusting ambient lighting, or maybe suggesting sports primarily based totally at the user`s emotional state. This innovation objectives to beautify intellectual wellness and create an effective effect at the user`s everyday life. It may be described as that hyperintelligence this is past-human intelligence. Strong AI represents a stage of functionality a long way past modern-day achievements in synthetic intelligence, which predominantly includes susceptible or slight AIs excelling in precise domains. This superior shape of AI might necessitate now no longer simply incremental overall performance upgrades however essential breakthroughs in fundamental research, allowing the version to comprehensively

Aspect	Narrow AI (Weak AI)	General AI (Strong AI or AGI)
Scope	Limited to specific tasks or domains.	Capable of understanding and performing diverse tasks at a human level.
Capabilities	Excels in targeted areas, outperforming humans in specialized tasks.	Demonstrates cognitive abilities comparable to humans, encompassing a wide range of tasks.
Human-Like Qualities	Lacks human-like consciousness, emotions, and critical thinking.	May or may not require human-like attributes, with varying opinions among experts.
Task Automation	Focuses on automating specific human tasks.	Aims to simulate and perform tasks across various domains, replicating human intelligence comprehensively.
Current Status	Widely deployed and successful in practical applications.	Remains largely theoretical and speculative; not yet achieved in practice.

Table 2. the differences between narrow and general artificial intelligences.

2.2. Limits Memory:

Limited memory machines can keep beyond reports or a few statistics for a brief length of time. These machines can use saved statistics for a restricted term only. Self-using motors are one of the first-class examples of Limited Memory systems. These motors can shop current velocity of close by motors, the space of different motors, velocity limit, and different facts to navigate the road. A best instance of a system with limited memory is self-riding motors. These motors examine the situations at the street, examine them, and make selections approximately the carried-out speed, the shortest route, the conduct of motors from the other direction, etc. To make a choice safely, those machines don't simply study the cutting-edge situation – they perceive street situations and song different gadgets over a while. However, not like human drivers, confined reminiscence machines can't practice the enjoy and understanding received from one pressure to the next. Every time a self-riding vehicle is started, the studying system starts again.

2.3. Super AI:

Super AI is a degree of Intelligence of Systems at which machines ought to surpass human intelligence, and might carry out any venture higher than human with cognitive properties. It is a final result of trendy Artificial intelligence. Some key traits of sturdy Artificial intelligence consist of functionality consist of the capacity to think, to reason, clear up the puzzle, make judgments, plan, learn, and talk through its own. Super AI remains a hypothetical idea of Artificial Intelligence. Development of such structures in actual remains international converting task.

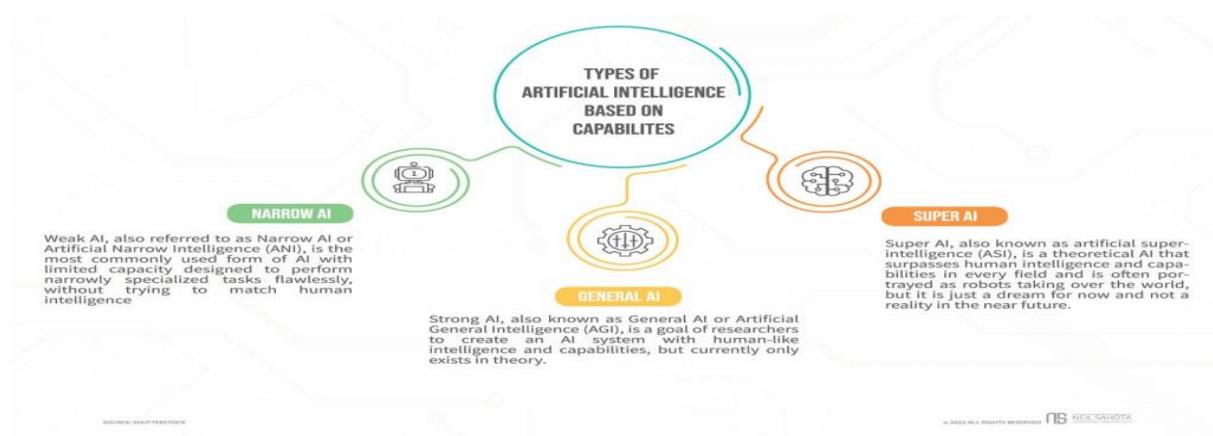


Figure 1. Four types of artificial intelligence based on functionalities

3.Application of Artificial Intelligences:

3.1. In Education:

“Artificial Intelligence, Education Technology 5 Essential Applications of AI Technology in Education July 5th, 2023 Tim Boltz Headshot Tim Boltz Education Market Program Executive, Carahsoft When growing up and sitting through math class, students often heard teachers say that students should not rely on a calculator to do their math for them. After all, they would never have a calculator in their pockets. Today, that statement could not be farther from the truth. Now, many students have an entire computer in their pockets with a calculator just a click of a button away. The growth of artificial intelligence (AI) has increased exponentially within the last few decades, and students and educators alike must embrace the latest in AI and education technology to keep up with the pace. Carahsoft AI in EdTech Blog Embedded Image 2023In all learning environments, students and teachers rely on modern technologies to enhance their experiences to be as informational, productive and efficient as possible. In recent years, hybrid learning and collaborative digital spaces became essential components of education for both K-12 and higher education organizations. With this development, education technology has evolved and expanded to include new and more advanced AI systems inside and outside the classroom. The needs of students are always changing, and educators must constantly adapt to progressive ways of teaching and learn different technologies or platforms that can assist with their daily lessons. With the implementation of AI and numerous benefits of digital learning, all students and instructors can achieve a more wholistic and innovative education. These five topics demonstrate how AI is an essential tool in the learning process for various types of learners across K-12 and higher education. Communication Carahsoft AI in EdTech Blog Icon 5 Image 2023Innovative trends in education technology have made it possible for students and staff to stay connected, whether through remote online learning or collaborative learning in the classroom. AI tools like SMS bots, predictive technology and ChatGPT can assist students in tasks such as navigating their school’s learning platforms, researching and preparing information for assignments and getting real-time answers to their questions. AI can also help teachers and professors orchestrate discussion points between students and guide next steps within small group collaborative projects.[1] Automation Carahsoft AI in EdTech Blog Icon 4 Image 2023For teachers, implementing AI can help automate repetitive daily tasks like grading tests and quizzes, and catching minor mistakes within written essays. This way they have more freedom and time to focus on in-depth feedback, creating comprehensive lesson plans and spending one-on-one time with their students.

Additionally, AI tools can give students instant feedback on their work, allowing them to be more independent in identifying inaccuracies and recognizing successful projects.[2] Immersive Learning Carahsoft AI in EdTech Blog Icon 3 Image 2023Augmented reality (AR) and virtual reality (VR) are becoming increasingly more popular in students' everyday lives, so using these technologies as a learning tool is familiar and compelling for them to gain valuable experiences in the classroom. Immersive technologies can simulate real-world scenarios for students to gain hands-on experience with low risk, like medical simulations and technical experiments. It also can allow students to break the barrier between their physical space and complex concepts like observing the planets up close or enlarging and examining something microscopic.[3] Not only do AR and VR create expansive opportunities for students to view and understand concepts in new and captivating ways, but they also create an additional, interactive and collaborative avenue of learning for students who may not be as responsive to traditional tools like textbooks and study guides.[4] Data-Driven Results Carahsoft AI in EdTech Blog Icon 1 Image 2023Throughout a student's education, data is continually collected to better understand and predict their developing needs and most effective learning strategies. AI technologies can quickly and automatically analyze and report on this data, allowing teachers and professors to evaluate trends in an individual student's or an entire class's performance. Empowered with this knowledge, educators can tailor their lesson plans and take a more proactive approach to supporting students' needs, ultimately increasing academic improvement for all.[5] Personalized Learning Carahsoft AI in EdTech Blog Icon 2 Image 2023Student's learning styles can vary depending on many factors. For example, some students learn best through more visual and interactive experiences, while others may learn best through memorization and flashcards. Analyzing data collected by AI can help teachers be more informed and prepared educators for different kinds of learner».

3. Challenges and Limitation of Artificial Intelligence:

3.1. Lack of Creativity and Empathy:

Despite the latest debate surrounding the innovative abilities of Artificial Intelligence, it does nonetheless lack creativity. Artificial Intelligence structures are primarily based totally on algorithms and mathematical models, which permit them to recognize styles and make predictions primarily based totally on massive quantities of data. However, those structures aren't capable of create new thoughts or concepts. AI isn't always capable of give you something absolutely novel, like a human artist growing a brand-new painting, or a human scien-

tist coming across a brand-new theory. Although, having stated that, it may be argued that not anything everybody creates is simply novel due to the fact we're encouraged through the whole lot round us and the whole lot that has come earlier than us. Such is the ambiguity we stay in! This obvious loss of creativity limits the capability packages of Artificial Intelligence, and makes it hard for the era for use in fields that require authentic thinking, which include art, music, and literature, even though I actually have visible examples of Artificial Intelligence being efficaciously used to jot down new songs withinside the fashion of well-known singers, and doing a quite suitable job - probably due to the fact it's learnt that fashion/tone/tempo and is regurgitating it. It's additionally honest to mention that Artificial Intelligence will have a quite suitable crack at enhancing current content... Here's the authentic M&S description of a geared-up meal: M&S Slow Cooked Beef Bourguignon. Tender boneless British pork bourguignon in a wealthy crimson wine sauce with mushrooms, onions and bacon. Perfect served with creamy mash or with a fluffy baked potato. Simply heat at the hob, withinside the microwave or oven and enjoy. Gluten loose. Serves 2. And here's the Chat GPT alternative: Indulge withinside the wealthy and succulent flavors of our M&S Slow Cooked Beef Bourguignon. Made with gentle boneless British pork, simmered in a mouthwatering crimson wine sauce with the addition of mushrooms, onions and bacon. Enjoy it with creamy mashed potatoes or a fluffy baked potato for the remaining consolation meal. Conveniently warmth it up at the stove, withinside the microwave or oven, and it's geared up to be devoured. Gluten-loose and best for serving. Overall, this Chat CPT appears

Quite

suitable

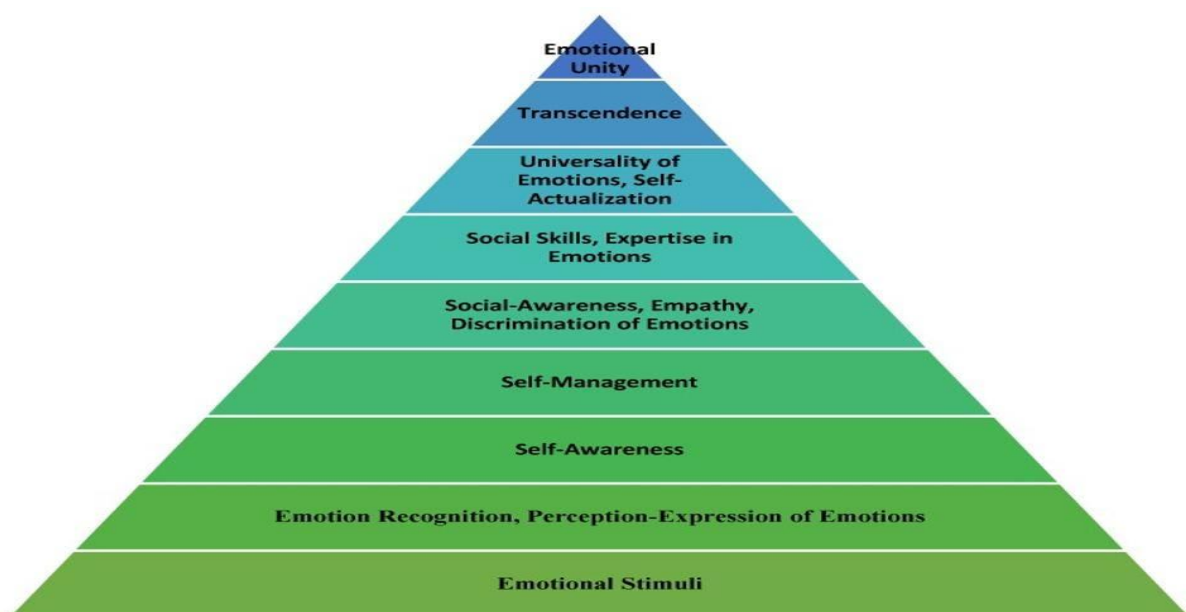


Figure2. the lack of empathy artificial intelligences.

According to this emotional intelligence pyramid, empathy is in all of the layers of the higher pyramid above emotion recognition. It is our empathy that enables us paintings towards emotional harmony as we continue towards self-actualization

4.2. Data security:

Limited capacity to deal with unstructured statistics: Artificial Intelligence structures in retail are frequently higher at dealing with dependent statistics which includes numerical values, they warfare with unstructured statistics which includes snap shots and text, that could make it tough to examine patron critiques and feedback. However, the fundamental issue on which all of the deep and device gaining knowledge of fashions are primarily based totally on is the supply of facts and assets to teach them. Yes, we've got facts, however as these facts is generated from tens of thousands and thousands of customers across the globe, there are possibilities these facts may be used for horrific purposes. For example, allow us to assume a clinical provider company gives offerings to at least one million human beings in a city, and because of a cyber-attack, the private facts of all of a million customers fall within-side the palms of all and sundry at the darkish web. This fact consists of facts approximately diseases, fitness problems, clinical history, and lots more. To make subjects worse, we're now handling planet length facts. With this a lot facts pouring in from all directions, there could absolutely be a few instances of facts leakage. Some groups have already commenced running innovatively to skip those barriers. It trains the facts on clever devices, and as a result it isn't dispatched again to the servers, simplest the skilled version is dispatched again to the organization.

3.2. Understanding the context:

AI structures have a constrained information of context and the nuances of human language and communication. Machines are regularly skilled on massive quantities of textual content records and are capable of become aware of styles and make predictions primarily based totally on those records. However, they lack the capacity to apprehend the nuances and subtleties of human language and communication. For example, they'll conflict to apprehend sarcasm, irony, or figurative language. They additionally lack the capacity to apprehend the context wherein language is used, which could cause mistakes or surprising behavior. Additionally,

it's miles difficult for AI to apprehend idiomatic expressions and cultural references, even though the greater they may be skilled and the greater publicity they get, the higher they take care of this form of language.

3.3. Computing power:

The quantity of electricity those electricity-hungry algorithms use is a thing retaining maximum builders away. Machine Learning and Deep Learning are the stepping stones of this Artificial Intelligence, and that they call for an ever-growing wide variety of cores and GPUs to paintings efficiently. There are numerous domain names in which we've thoughts and know-how to put into effect deep gaining knowledge of frameworks together with asteroid tracking, healthcare deployment, tracing of cosmic bodies, and lots extra. They require a supercomputer's computing electricity, and yes, supercomputers aren't cheap. Although, because of the provision of Cloud Computing and parallel processing structures builders' paintings on AI structures extra effectively, they arrive at a price. Not all and sundry can come up with the money for that with a growth withinside the influx of exceptional quantities of facts and swiftly growing complicated algorithms.

3.4. Lack of Emotion:

AI structures do now no longer have the cap potential to experience feelings. Here is in which Chat CPT did a terrible job... Question: what are the variations among the human feelings of jealousy and envy? Answer: Jealousy and envy are comparable feelings, however they've a few key variations. Jealousy is the sensation of resentment or anger in the direction of a person else's achievement or possession. It is frequently directed in the direction of someone who's perceived as having something that the jealous individual wishes or desires. Jealousy may be brought about through a romantic partner, a friend, or a colleague who's doing properly of their existence or career. Envy, on the opposite hand, is the sensation of trying something that a person else has. It is frequently directed in the direction of someone who's perceived as having something that the green with envy individual needs, they had. Envy may be brought about through a person's possessions, status, or accomplishments. In summary, jealousy is an emotion that arises whilst a person appears like they may be dropping something they've, even as envy is an emotion that arises whilst a person wishes something they do not have. Here's a dictionary.com explanation (probably written through a human and less complicated to understand): Jealousy and envy each contain a sense of choice for what some other individual has, however jealousy is generally idea to be extra

bad it frequently includes resentment towards the opposite individual. Envy is likewise a bad feeling like a mixture of admiration and discontent. however, the phrase doesn't generally mean hostility. Another distinction is that envy may be used as each a noun and a verb. They can handiest procedure statistics in a logical and dependent way. They can comprehend styles in statistics that can imply sure feelings, including facial expressions or tone of voice, however they do now no longer enjoy feelings themselves. In different words, AI does now no longer have awareness or feelings, it does now no longer have the subjective enjoy of feeling happy, unhappy or angry.

4. Future Tends in Artificial Intelligence:

We dive into the interesting international of Artificial Intelligence (AI) in Education. As era maintains to reshape the manner we study and teach, AI has emerged as an effective device with an extensive variety of progressive applications. Artificial Intelligence has made sizable inroads in training, developing possibilities for each college students and educators. In this selection article, we delve into diverse elements of AI in training, together with customized gaining knowledge of, digital tutors, and facts-pushed insights. Discover how AI is reshaping conventional lecture room fashions and improving the instructional experience. The destiny of training is intricately intertwined with synthetic intelligence (AI), preserving the promise of revolutionizing conventional gaining knowledge of methods. AI's cap potential to offer customized, adaptive gaining knowledge of reviews is certainly considered one among its maximum sizable contributions. By reading character college students' strengths and weaknesses, AI can tailor instructional content material and pace, optimizing engagement and comprehension. Intelligent AI tutors provide real-time comments and guidance, making training extra available and effective. Moreover, AI can bridge instructional disparities, making nice sources available to all, and sell lifelong gaining knowledge of, essential in an ever-evolving task market. Data-pushed insights empower educators to refine coaching methods, even as Artificial Intelligence fosters international collaboration and communication. However, moral worries concerning facts privateness and algorithmic bias want to be addressed. Artificial Intelligence isn't intended to update instructors however instead decorate their roles, automating administrative responsibilities and imparting support. The venture lies in getting ready college students for the destiny, emphasizing essential thinking, creativity, and virtual literacy to thrive in an international more and more fashioned with the aid of using AI and automation. In summary, the destiny of training and AI gives interesting possibilities, however a sensitive

stability among innovation and ethics is essential for its a success integration into the instructional landscape

5.1. Predication for the future Development of Artificial Intelligence:

Artificial intelligence (AI) has fast hooked up itself as a transformative pressure in an extensive variety of industries, together with schooling. The improvement of AI has ended in an array of improvements and improvements which have impacted many sides of human life. As an essential factor to societal evolution and man or woman improvement, schooling has had sizeable blessings from AI breakthroughs. The integration of AI in instructional structures is changing the methods wherein college students learn, instructors educate, and establishments function. By personalizing studying experiences, automating administrative responsibilities, and turning in real-time feedback, AI is revolutionizing the academic landscape, bridging gaps, and inspiring a greater inclusive and powerful studying environment. Given the significance of integrating AI in schooling, there may be a want to mirror on its implications.

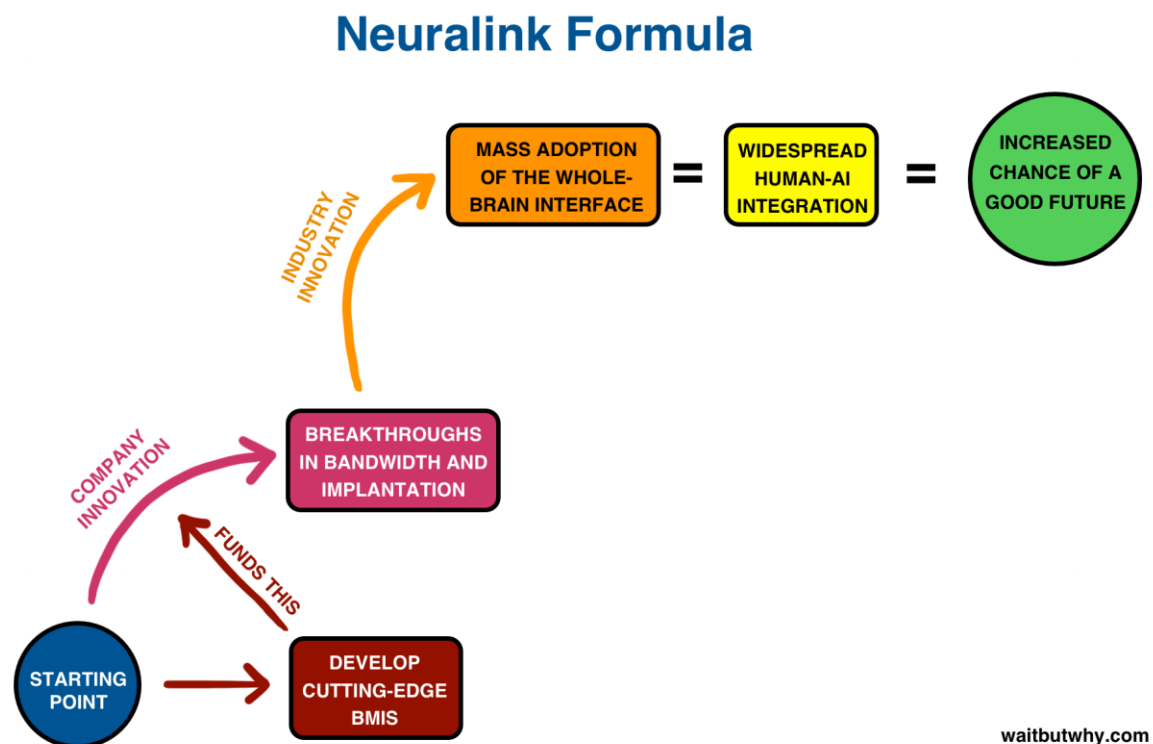


Figure 3. artificial intelligence future prediction.

In conclusion, artificial intelligence integrating into language learning and translation emerge as a big change in how students learn language skills and approach translation jobs. The AI-pushed equipment like chatbots, grammar checkers, and machine translation structures provide freshmen with extra discovery, individualized and obtainable sources that supplement language learning and translation precision. AI improves the contextual perception of language with the help of Natural.

Nevertheless, while AI does bring many benefits—including improved efficiency, flexibility, and availability—it does still have some limits, especially when it comes to the subtle nuances of human language that AI continues to have trouble understanding. AI structures lose cultural and emotional information in a method that is nonetheless vital for translating language with its complete depth. Although AI-driven equipment could help with the technical aspects of language gaining knowledge of and methods. For first-year English Master college students at Ibn Khaldun University, AI may be a precious tool, however its use must be balanced with important questioning and human steerage to achieve the high-quality gaining knowledge of outcomes.

Chapter Two

The Machine Translation

Introduction

Machines are actually learning from the translations created by the humans. So, it creates now the translations on their own in a very fast way, because computers are very quick.

Machine translation can be still useful even for the content where the quality matters, and this is where the suitable combination between the translators and the machine actually happens and this process is referred to as MTPE (MT: machine translation, PE: Post-Editing). Then in case the reader wants to achieve really good quality, we always want to combine machine translation with the human.

Machine translation are form of computational linguistics and language engineering which uses software to translate text or speech from one language to another, the most common engines are ruled-based and statistical, these engines differ in the way that they process and analyze content that are often combined within the same and known as Hybrid MT, rule based machine or RB machine translation engines use linguistic rules to break down the content, it produces more predictable output for terminology and grammar thought the use of customized terminology lists to fine tune the engine the ability to correct errors with a targeted rule , rule based engines don't need a large and structured set of texts also known as a bilingual corpus to create translation system. Statistical machine translation also known as SMT used statistical models to generate the translation of the course content. Statistical engines do not analyze text based on language rules instead the statistical model is built by analyzing bilingual corpus requires an appropriate volume of bilingual content to do.

1.1 overview of machine translation:

Machine translation is a way of building Artificial Intelligence by making the computer learn from training data. In other words, machine translation is a sub-field of Artificial Intelligence because it is not the only way of building AI systems Machine translation has becoming one the most popular ways of building AI systems, mainly due to the progress in computer Hardware and the availability of large training data-assets. Machine translation is a tool to translate automatically, it is mutational tool that can help translating for example it may translate a topic we do not know, automated translation carried out by a computer not a human _Machine translation can be trained to become more accurate. _ adaptive machine translation is a brand-new self-learning _Machine translation engine which learns form post edits as you translate

creating a unique machine translation _Machine translation can be faster than a human and helpful. An example of machine translation: Seamless M4T is a foundational multilingual and multitask model that seamlessly translates and transcribes across speech and text. It supports automatic speech recognition for nearly 100 languages and also speech to text translation for nearly 100 input and output languages with no mistakes.

1.2. the historical of evolution of machine translation:

Machine Translation began out across the Fifties and contain a whole lot of guide processing, wherein a few boundaries together with the electricity of computing, records availability, and garage abilities had been sincerely challenging.

1.2.1. The Birth of Machine Translation:

Between 1949 and 1965, the records of system translation timeline opened up as a reaction to Cold War needs for green language translation. Warren Weaver`s influential memorandum in 1949 stimulated early research, culminating with inside the Georgetown-IBM test of 1954, which translated Russian to English. Initial efforts centered on rule-primarily based totally systems, exemplified through IBM`s collaboration with the USA Air Force. The generation additionally noticed the emergence of the first-ever system translation convention in 1952, placing the degree for ongoing collaboration and research. Despite early successes, development became restrained through computational linguistic complexities, and the underestimation of the intricacies of thoughts of human language.

1.2.2. The Early Days of Machine Translation Research:

The early days of device translation (MT) research, spanning the overdue Nineteen Forties to the mid-1960s, had been characterized with the aid of using pioneering efforts to automate language translation. After Warren Weaver`s influential 1949 memorandum, researchers like Warren Weaver and his crew on the Massachusetts Institute of Technology (MIT) explored the feasibility of computational translation. The landmark Georgetown-IBM test in 1954 validated the potential, translating Russian to English. As researchers delved into rule-primarily based totally approaches, extensively with the improvement of the Georgetown-IBM system, optimism surged. However, demanding situations emerged, such as linguistic complexities and the overestimation of the simplicity of translation tasks, main to a duration of skepticism and a shift in attention toward different linguistic pursuits.

1.2.3. Machine Translation Takes Flight:

From 1966 to 1995, machine translation (MT) skilled full-size improvements and transformations. The early length witnessed the ALPAC document in 1966, which briefly

faded investment because of skepticism approximately the feasibility of absolutely computerized phrase translation. However, studies persisted, evolving into rule primarily based totally structures like SYSTRAN with inside the 1970s. The Eighties marked the shift toward expertise-primarily based totally strategies, emphasizing linguistic expertise and context. IBM's Candide device and Eurocrat assignment exemplified those efforts. The creation of statistical strategies with inside the 1990s, extensively the creation of the IBM Candide device, laid the foundation for next breakthroughs, putting the level for the neural system translation revolution with inside the twenty first century.

1.2.4. Rule-Based Machine Translation (RBMT) Emerges:

During the 1950s and 1960s, rule-primarily based totally techniques ruled the sphere of MT. These structures trusted linguistic policies and dictionaries to generate translations. Notable examples encompass the improvement of the Georgetown-IBM system, in addition to tasks in international locations including the Soviet Union and Japan.

1.2.5. ALPAC Report (1966):

The Automatic Language Processing Advisory Committee (ALPAC) file in 1966 dealt a large blow to the optimism surrounding gadget translation on the time. The file, commissioned with the aid of using the U.S. government, criticized the great and cost-effectiveness of present MT systems, main to a decline in investment and hobby with inside the field.

1.2.6. Neural Machine Translation (2010s-Present):

2010s: The advent of deep gaining knowledge of and neural networks revolutionized MT with the emergence of neural machine translation (NMT) fashions immediately map enter sequences to output sequences, providing massive upgrades in translation first-class and fluency. Example Systems: Google's Neural Machine Translation (GNMT), Facebook's FAIR fashion, and the improvement of open-supply frameworks consisting of Open NMT and TensorFlow.

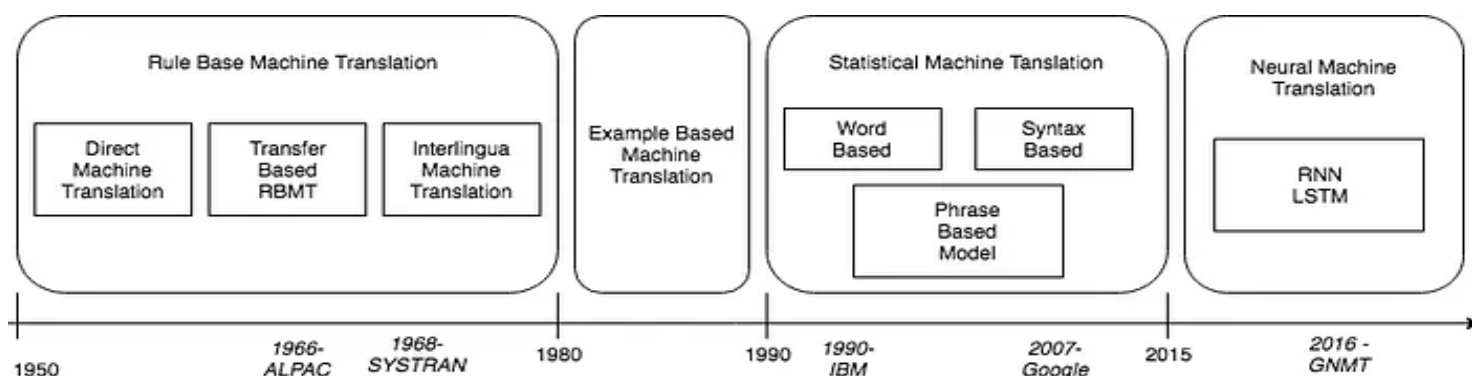


Figure 1. The evolution of machine translation systems over the years.

1.3. Importance of machine translation:

Machine translation (MT) systems have had a splendid impact on language learning. They had been used for language education and learning, developing reputation of grammatical linguistic features and improving writing and communication skills in English. For instance, it's a long way viable for unbiased beginners to conduct self-regulated language studies with the resource of the use of the usage of online system translation equipment to check this means that and pronunciation of terms and terms, get manual to generate and understand sentences on the identical time as studying reading, speaking, and writing skills. Machine learning (ML) software had been used appreciably in several factors nowadays and one in each of them is translation process. Machine translation (MT) allows the translation for every one now not most effective for the green individuals. Dictionaries can be downloaded in our smart phones and computers. They are also available with within the most of webs which incorporates Google translate and might use them easily. This has a study objective to reveal the location of tool translation in improving the green individual's potential in translation and the impact of MT in accomplishing effective learning. Online system translation device has outstanding cap potential to transform foreign places language training. This essay will synthesize systematic research on the characteristic of system translation achieved with within the location of educational linguistics. After describing strategies developed that promote the combination of system translation into language gaining knowledge of environments, the essay will in brief outline lingering concerns associated with the combination of MT device into educational settings. We will advocate future R&D priorities that could generate products

based mostly on gift era that have the cap potential to manual language beginners more optimally in assessment to present.

gadget translation equipment. We finish that an acknowledgment of the problems of MT equipment to deal with sociocultural complicated supply textual content might pave the manner for the improvement of MT-primarily based totally pedagogical equipment. Introduction The proliferation of impressively correct consumer-orientated unfastened on-line gadget translation equipment specifically Google Translate creates demanding situations and possibilities for language newcomers in addition to the expert overseas language training community. After imparting a standard overview, this essay will spotlight studies with inside the area of instructional linguistics that goals at studying each perception and the real use of gadget translation technology among language newcomers and language instructors. These studies evaluate will cognizance on interconnected clusters of studies: perceptions of MT equipment among educators and language newcomers; evaluation and effect evaluation of tutorial methods that use MT tool. Here, we are able to describe a success methods evolved through academic linguists that permit the mixing of gadget translation technology into overseas language classrooms. After sketching those possibilities, we are able to define what we remember the maximum sizable dangers related to the mixing of MT equipment into language mastering environments. We will argue that if deployed as a tutorial technology, MT equipment can also additionally result in reductionist perceptions of language among students, teachers, and the overall public. Based on those considerations, we are able to define destiny priorities for each builder of gadget translation packages and educational designers that could generate changed technology that guide language newcomers of their quest to come to be each able customers of language technology whilst growing independent talent in an overseas language with the assist of innovative, pedagogically-more desirable MT equipment. For therefor more some application of machine translation Document Translation: Translation of documents, articles, reports, and different textual content material. In addition, Website Localization: Translation of web sites and on-line content material into a couple of languages. Increasing to Multilingual Customer Support: Providing multilingual customer support thru chat-bots and automatic translation services. for Language Learning: Supporting language rookies with immediately translations and vocabulary assistance.

2.The Basics of Machine Translation:

2.1. The concept and Principles of Machine Translation:

The machine translation revolves round the usage of synthetic intelligence to mechanically translate textual content from one language to another. It's all approximately coaching computer systems to recognize the shape and that means of sentences in one-of-a-kind languages, to be able to generate correct translations. Machine translation structures examine the enter textual content, wreck it down into smaller units, after which use numerous algorithms and fashions to generate the translated output. It's a complicated and charming location of studies that goals to bridge language boundaries and facilitate verbal exchange throughout one-of-a-kind cultures. And it's referring back to the computerized procedure of translating textual content or speech from one language to any other the use of computational algorithms and techniques. The number one goal of MT is to allow communicate and know-how among those who communicate distinctive languages without the want for human translators. However, there is some Key Components of the Concept which is first Input Text or Speech: MT structures obtain enter with inside the shape of textual content or speech with inside the supply language that calls for translation. In addition, Translation Process: The enter undergoes linguistic analysis, inclusive of morphological, syntactic, semantic, and pragmatic know-how, to generate an equal translation with inside the goal language. This procedure entails numerous computational techniques, together with statistical modeling, rule-primarily based totally approaches, and neural networks. Thirdly, Output Text or Speech: The end result of the interpretation procedure is output with inside the goal language, which preferably preserves the meaning, style, and nuances of the authentic textual content or speech.

The principles in the back of it contain reading the shape and which means of sentences in each the supply and goal languages. This consists of knowledge grammar, syntax, and semantics to generate correct translations. Different approaches, inclusive of rule-based, statistical, and neural device translation, are used to acquire this. It's an interesting subject that objectives to interrupt down language boundaries and global communication.

3. Types of Machine Translation Systems:

In the age of superior technology, Machine Translation has turn out to be a vital element of language gaining knowledge of and international communication there is:

3.1. Rule-based Machine Translation System:

Rule-Based Machine Translation (RBMT) is predicated on linguistic guidelines and dictionaries to translate textual content from one language to another. RBMT structures regularly re-

quire massive guide enter from linguists to construct and preserve the guideline of thumb sets.

Types of Rule-Based Machine Translation There are 3 special sorts of rule-primarily based totally system translation structures: Direct Systems (Dictionary Based Machine Translation) map enter to output with primary rules. Transfer Rule-Based Machine Translation Systems (Transfer Based Machine Translation) rent morphological and syntactical analysis. Secondly, Interlingual Rule-Based Machine Translation Systems (Interlingual) use a summary meaning. Rule-Based Machine Translation structures also can be characterized because the structures contrary to Example-primarily based totally Systems of Machine Translation (Example Based Machine Translation), Rule primarily based totally gadget translation works at the guidelines specific through human specialists to explain the interpretation process. It is likewise referred to as Knowledge Base Machine Translation (KBMT) or Classical Machine Translation. It relies upon at the linguistic records gift with inside the supply language and the translated language. Rules are primarily based totally on Chomsky Normal Form (CNF) and Cocke Kasama Younger (CKY). First phrases are translated and later seems into syntactic and semantic with phonetics. Approaches Method Analysis of Source Language to Translated Language Transfer Source Language Generation of Transfer Language primarily based totally on Source Language transfer Third step is much like direct gadget translation.

Step 1: Analysis Performs Semantic Lexical Keyword Extraction Sentiment Analysis and others It does now no longer look at function of phrases i.e., does now no longer look at significant sentences.

Step 2: Transfers the expertise to model

Step 3: Identifying which phrase will in shape for the sentence Method — II Source while Hybrid Machine Translations Systems employ many standards derived from RBMT.

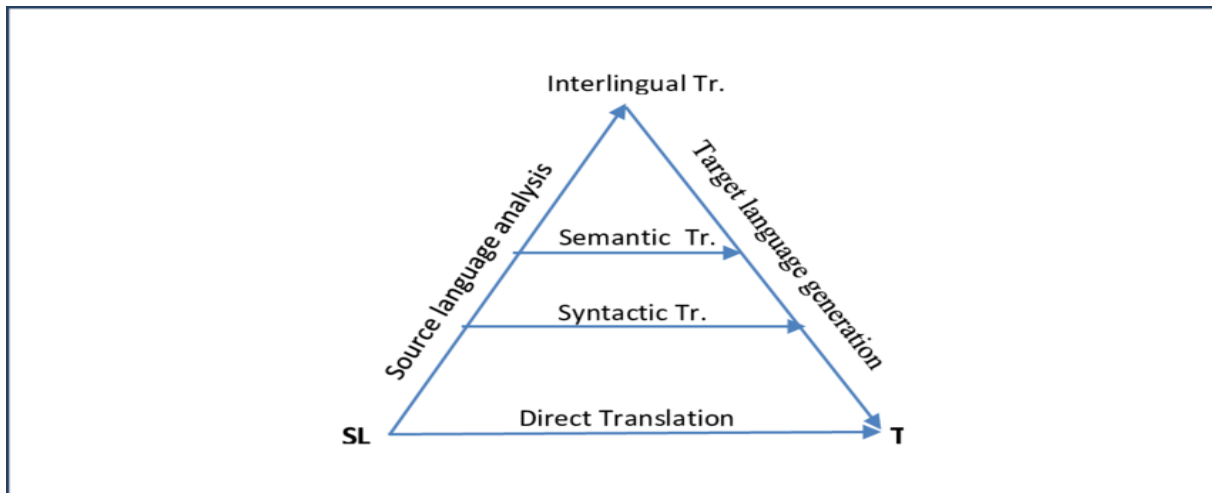


Figure 2: types of rule-based machine translation

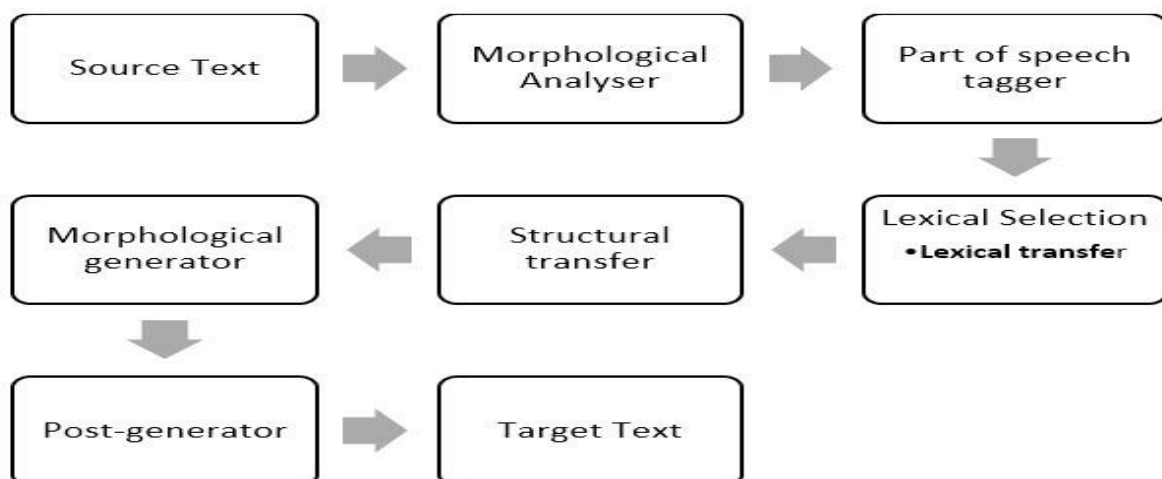


Figure 3: rule based of machine translation

3.2. Statistical Machine Translation:

Statistical Machine Translation (SMT) makes use of statistical fashions primarily based totally on bilingual textual content corpora to discover the maximum likely translation. The greater good sized and various the corpus, the higher the interpretation quality. but Statistical device translation (SMT) is a device translation method that makes use of big volumes of bilingual statistics to locate the maximum likely translation for a given enter. Statistical device translation structures learn how to translate through analysis the statistical relationships among authentic texts and their present human translations. The maximum critical additives in statistical device translation are the interpretation version and the language version. The language version is constructed from the output language monolingual statistics. The language version

reveals the first-rate desire from the candidate translations primarily based totally on the interpretation language. The language version may be related to fluency with inside the translation as it offers the translated textual content its herbal language flow. The statistical device translation version is educated with parallel statistics. A translation version is a desk of aligned terms and their translation. These terms are referred to as n-grams. motive of the interpretation version is to are expecting candidate translations for precise enter texts. The translation version may be related to adequacy as it preserves the which means of the source. manner the enter textual content is split into terms. The terms are matched with their parallel equivalents from the interpretation version. The language version validates that the interpretation is likely with inside the output language. Approaches Word-primarily based totally translation: The version generates the interpretation word by-phrase. Phrase-primarily based totally translation: The version interprets sequences of words. Syntax-primarily based totally translation: The version interprets syntactic units. Hierarchical phrase-primarily based totally translation: The version combines phrase-primarily based totally techniques with syntax-primarily based totally techniques. Challenge's Parallel statistics introduction and schooling is highly-priced and time-consuming. Statistical device translation calls for big parallel statistics of as a minimum 2 million words. Specific mistakes with inside the translation are tough to are expecting and fix. Statistical device translation is tough to are expecting and fix. Statistical device translation is much less appropriate for language pairs with variations in phrase order, for instance, English to Chinese translations.

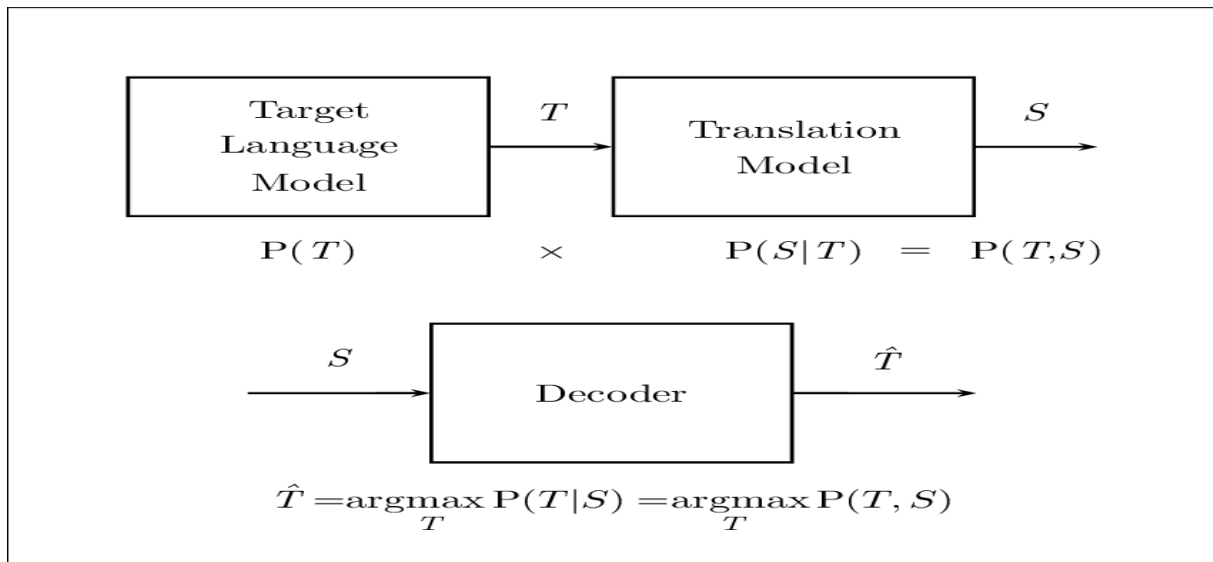
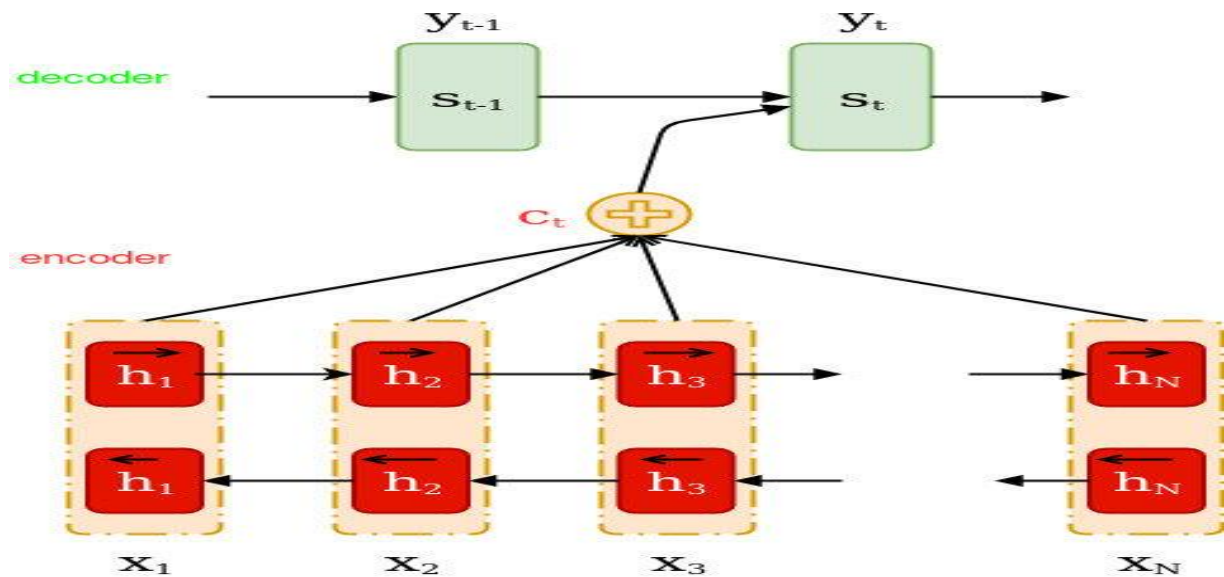


Figure 4: A statistical machine translation system.

3.3. Neural machine translation (NMT):

Neural Machine Translation structures leverage synthetic neural networks, especially deep mastering fashions, to translate textual content without delay from one language to another. NMT represents a paradigm shift in MT, taking into consideration cease-to-cess mastering and extra powerful dealing with of lengthy-variety dependencies. NMT structures usually contain the subsequent components: Encoder-Decoder Architecture: A structure inclusive of



predominant components an encoder that tactics the enter sentence with inside the supply language and a decoder that generates the interpretation with inside the goal language. Recurrent Neural Networks (RNNs) or Transformers: NMT fashions may be constructed the usage of recurrent neural networks (RNNs), including LSTM or GRU, or transformer architectures, that have emerged as an increasing number of famous because of their parallel processing capabilities. Attention Mechanism: A mechanism that permits the decoder to

cognizance on one-of-a-kind components of the enter sentence while producing every phrase of the interpretation, enhancing the pleasant of translations, especially for lengthy sentences.

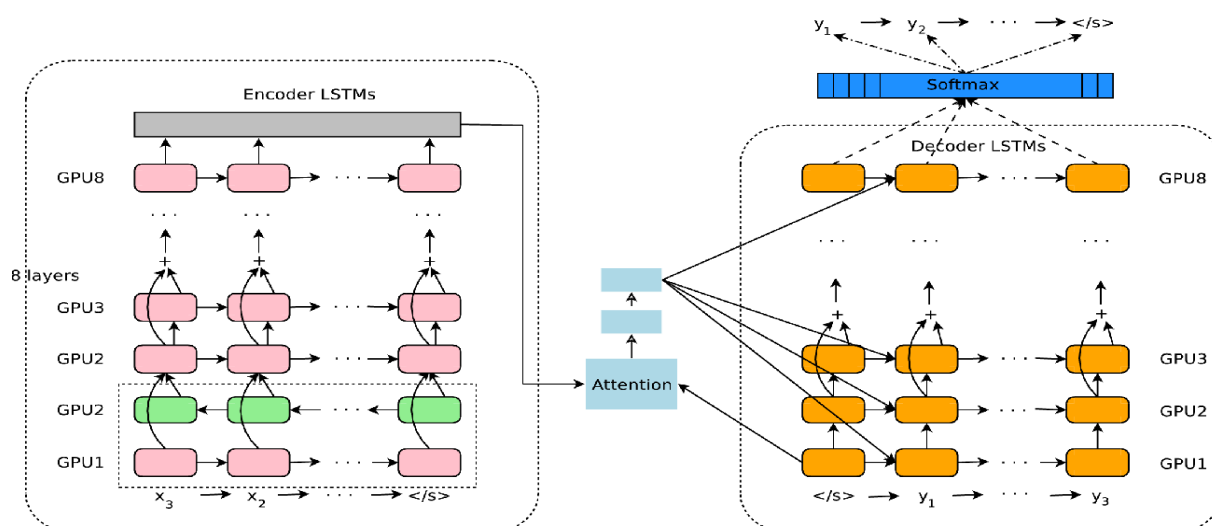


Figure 6. The model architecture of GNMT, Google’s Neural Machine Translation system. On the left is the encoder network, on the right is the decoder network, in the middle is the attention module. The bottom encoder.

4. Challenges of Machine Translation:

Challenges Despite the above-mentioned perks of MT, there are sure troubles. You can most effectively triumph over them through hiring a human translator. So, preserve it in thoughts earlier than deciding on to apply system translation as those troubles with the interpretation becomes enterprise troubles if they're now no longer resolved: Buy satisfactory or purchase twice. The price also can be a bad factor. You must apprehend what high-satisfactory you get with an unfastened/reasonably-priced option. Easy does it. Similar to the above - if something is finished very quickly, there's typically an affordable expectation that it'll now no longer be of excessive high-satisfactory. Quality paintings take greater time, care, and attention. Lack of context. The MT technique can take the equal time period while it seems in unique sections of a file and interprets it differently. On the contrary, a human translator guarantees that terminology is constant during a project. This characteristic is important so that you do now no longer confuse your reader while relating to the equal thing. The protection is at risk. How are you able to ensure that the records you placed into the unfastened MT answers is secured? Such software program is open for everybody, their engines are located on servers somewhere, and one must pick the interpretation device supplier very thoughtfully. Formatting. Complex formatting can pose an intense trouble for MT. It will phase textual content with inside the center of sentences, which might make the MT don't have any context. Lack of creativity. The artwork of language entails plenty of creativity. This is vital to apprehend while speaking on the worldwide marketplace together along with your clients. Human translators are greater

innovative with the situation remember to hand and supply a greater innovative answer with a purpose to resonate together along with your enterprise companions or customers so we have

4.1. Linguistics challenges:

Languages include numerous styles of ambiguity, along with lexical ambiguity (phrases with more than one meaning), syntactic ambiguity (more than one feasible parse trees), and semantic ambiguity (more than one feasible interpretation). MT structures regularly war to disambiguate those ambiguities accurately, main to mistakes in translation.

4.2. Domain Mi smutch:

Domain mismatch: Machine translation structures are prone to area mismatch, specifically in a low-useful resource scenario. Out-of-area translations are regularly of bad first-class and liable to hallucinations, because of publicity bias and the decoder performing as a language model. While we stay in an increasing number of interconnected worlds, distinctive locations nevertheless show off strikingly distinctive cultures and plenty of activities we revel in in each day lifestyles pertain handiest to the precise region we stay in. As a result, humans regularly communicate approximately various things in distinctive components of the arena. In these paintings we examine the impact of neighborhood context in device translation and postulate that specially in low useful resource settings this reasons the domain names of the supply and goal language to significantly mismatch, as the 2 languages are regularly spoken in in addition aside areas of the arena with greater different cultural trends and unrelated neighborhood activities. We first formalize the idea of supply-goal area mismatch, recommend a metric to quantify it, and offer empirical proof corroborating our instinct that natural textual content produced via way of means of humans speak me very distinctive languages famous the maximum dramatic differences. We finish with an empirical examine of the way supply-goal area mismatch influences education of device translation structures for low useful resource language pairs. In particular, we discover that it significantly influences back-translation, however the degradation may be alleviated via way of means of combining back-translation with self-education and via way of means of growing the relative quantity of goal aspect monolingual data. An additional system was trained on all the training data.

Domain in machine translation is described via way of means of data from a particular supply which will be one-of-a-kind from different domain names in topic, style, stage of formality, complexity ...etc. Same phrases in one-of-a-kind domain names have one-of-a-kind transla-

tions and expressed in one-of-a-kind styles. To degree how properly Neural Machine Translation (NMT) and Statistical Machine Translation (SMT) preserve up with area mismatch, they educated 5 one-of-a-kind structures the usage of 5 one-of-a-kind corpora from one-of-a-kind domain names as proven below

Corpus	Words	Sentences	W/S
Law (Acquis)	18,128,173	715,372	25.3
Medical (EMEA)	14,301,472	1,104,752	12.9
IT	3,041,677	337,817	9.0
Koran (Tanzil)	9,848,539	480,421	20.5
Subtitles	114,371,754	13,873,398	8.2

Table 2: Corpora used to train domain-specific systems, taken from the OPUS repository. IT corpora are GNOME, KDE, PHP, Ubuntu, and OpenOffice.

They used German-English pairs with test sets sub-sampled from the data. A common byte-pair encoding (BPE) is used for all training runs. The following figure shows a comparison between NMT and SMT systems BLEU scores when trained on the corpora at the row and tested on the corpora at the column:

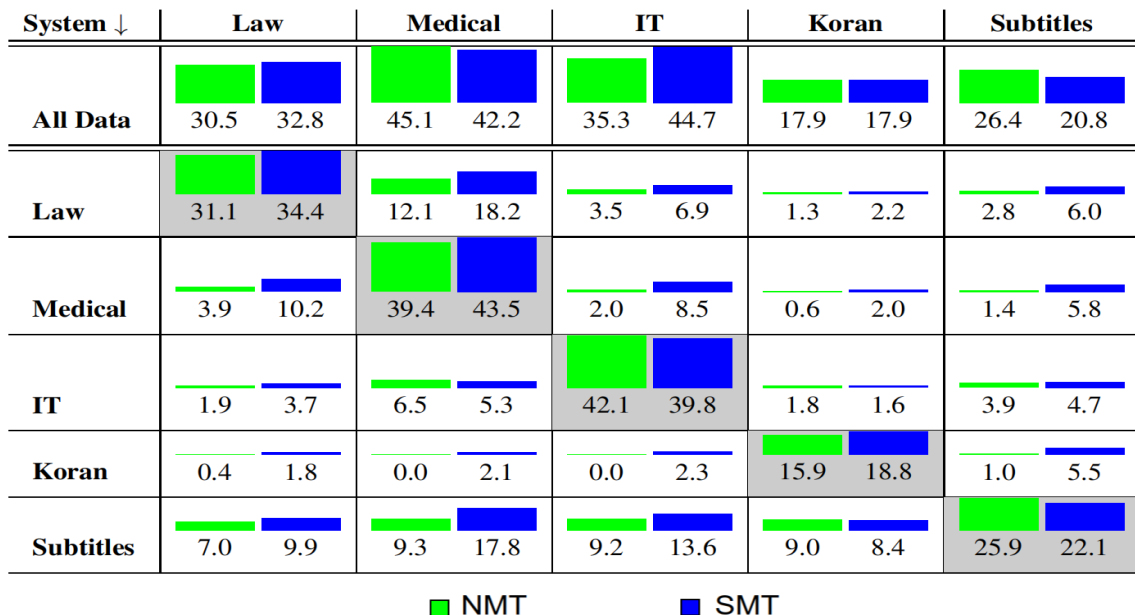


Figure 7. Quality of systems (BLEU), when trained on one domain (rows) and tested on another domain (columns). Comparably, NMT systems (left bars) show more degraded performance out of domain.

4.3. rare words in machine translation:

MT structures carry out quality for language pairs with considerable education data, inclusive of English-Spanish or French-German. However, for uncommon language pairs or low-useful resource languages, MT structures can also additionally battle to provide correct translations because of confined education data. Such as in Out-of-Vocabulary Issues in Rare phrases now no longer gift withinside the model's vocabulary can bring about translation mistakes or omissions if now no longer well treated for the duration of the interpretation process. Moreover, in Limited Occurrence the Rare words, which include unusual nouns, specialized jargon, or rare lexical items, arise with low frequency in language corpora, making it hard for gadget translation structures to correctly translate them. However, "Conventional wisdom states that neural machine translation models perform particularly poorly on rare words, (Luong et al., 2015; Sembrich et al., 2016b; Arthur et al., 2016) due in part to the smaller vocabularies used by NMT systems. We examine this claim by comparing performance on rare word translation between NMT and SMT systems of similar quality for German-English

and find that NMT systems actually outperform SMT systems on translation of very infrequent

words. However, both NMT and SMT systems do continue to have difficulty translating some infrequent words, particularly those belonging to highly-inflected categories".

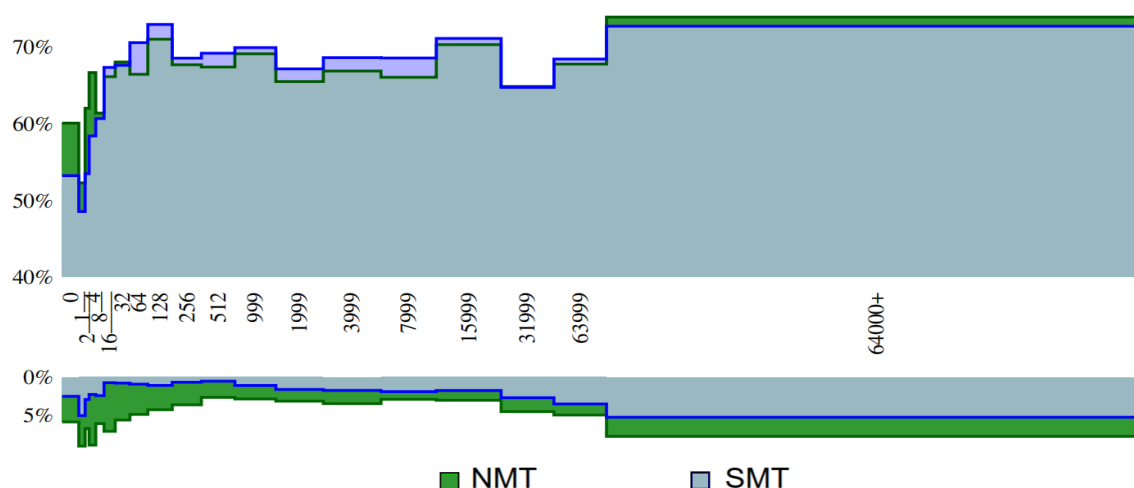


Figure 8. Precision of translation and deletion rates by source words type. SMT (light blue) and NMT (dark green). The horizontal axis represents the corpus frequency of the source

types, with the axis labels showing the upper end of the bin. Bin width is proportional to the number of word types in that frequency range. The upper part of the graph shows the precision averaged across all word types in the bin. The lower part shows the proportion of source tokens in the bin that were deleted

4.4. long sentence:

A famous flaw of early encoder-decoder NMT fashions turned into the incapacity to well translate lengthy sentences (Cho et al., 2014; PougetAbadie et al., 2014). The creation of the eye version remedied this trouble somewhat. But how well? We used the big English-Spanish machine from the studying curve experiments (Section 3.2), and used it to translate a group of information take a look at units from the WMT shared tasks. We broke up those units into buckets primarily based totally on supply sentence period (1-nine sub word tokens, 10-19 sub word tokens, etc.) and computed corpus-stage BLEU rankings for each. Figure 7 indicates the results. While standard NMT is higher than SMT, the SMT machine outperforms NMT on sentences of period 60 and higher. Quality for the 2 structures is noticeably close, except for the very lengthy sentences (eighty and greater tokens). The fine of the NMT machine is dramatically decrease for those because it produces too quick translations (period ratio 0.859, against. 1.024)

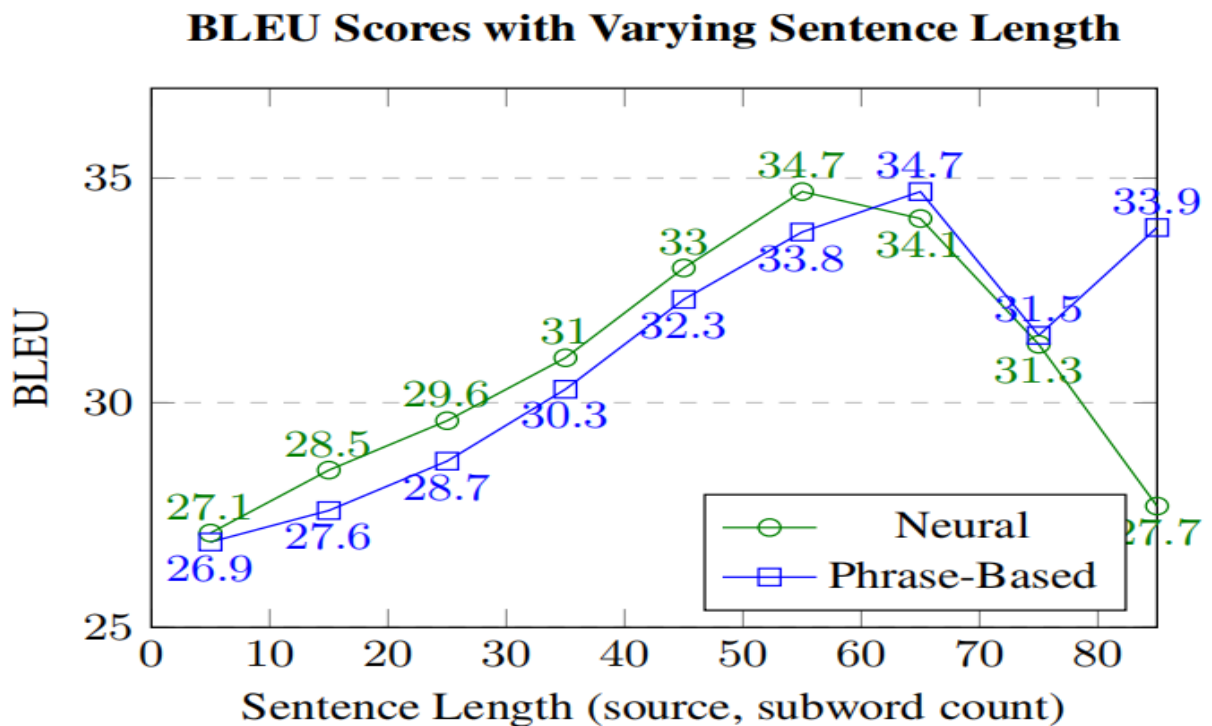


Figure 9. The quality for the two systems is relatively close, except for the very long sentences (80 and more tokens). The quality of the NMT system is dramatically lower for these since it produces too short translations.

5. Ethical consideration of machine translation:

Ethical concerns arise while machine-translated content material inadvertently promotes cultural insensitivity, stereotypes, or appropriation. It is important to recall the consequences of device translation on cultural identification and understanding, mainly whilst handling touchy subjects or materials. Is the entirety lots of files are translated into one-of-a-kind languages with one Sole cause allowing multi language verbal exchange relying at the cause of such verbal exchange the translations might be accomplished through people computer systems or aggregate of each in reality with benefit of device translation as an instance transition robotically supplied through a pc primarily based totally on schooling records set the door to multilingual verbal exchange has been open to wider spectrum of capability and customers in recent times device translation is utilized in an expert translation workflows and private verbal exchange alike we contend that if blended Mission translation and code sourcing can insure promise respond and unencumber the probably large bottleneck that would be resulting from loss of expert translators all through crisis

5.1. Bias in Machine Translation System:

Bias in Machine Translation Machines usually “resolve” unresolvable ambiguities via way of means of selecting whichever translation is statistically greater likely, primarily based totally on what they have got visible greater frequently of their schooling data. So medical doctors and administrators have a tendency to be translated as male, cleaners and caregivers as female: the translations are biased. There are different types of biases except gender bias. One not unusual place reason of bias in MT is the English pronoun you. Translating you into different languages frequently implies having to determine whether or not it's miles singular or plural, formal or informal.

in the recent years, there has been a growing interest in the research of machine bias, also referred to as algorithmic bias. The term “machine bias” describes the phenomenon that machine learning algorithms are prone to reinforce or amplify human biases (Prates et al., 2020). Machine learning algorithms are written by humans and draw conclusions from data that was created, collected, cleaned, and stored by humans. Thus, human error and bias can impact the algorithm and the results it generates (Sarvari, 2017). Nowadays, machine learning is used in

a wide variety of sectors, including insurance, crime prevention, recruitment, healthcare, search engines, news outlets, online advertising, and recommendation systems among others (Burrell, 2016; Goodman & Flaxman, 2016; Sarvari, 2017; Sandvig et al., 2014). Since machine learning algorithms have a great deal of influence on many aspects of life, it raises concerns when they exhibit bias or discrimination. Over the past few years, researchers and journalists have discovered many cases when algorithms created biased results against certain social groups, thus, making socially unjust decisions in terms of race, gender, age, or religion—a few examples of these are: gender bias in hiring algorithms (Chen et al., 2018; Dastin, 2018; Schwarm, 2018), ageist and racist ad targeting (Angwin et al., 2017; Barocas & Selbst, 2016; Chen et al., 2018), and the lack of using regional dialects in the training corpus of Natural Language Processing (NLP) algorithms (Jurgens et al., 2017).

5.2 Use of Machine Translation Technology:

Today, machine translation works great in situations wherein a textual content desires to be conveyed in a comprehensible shape in any other language. The language of the interpretation isn't always error-unfastened or absolutely logical, however it could be understood. The phrase order can be odd, or an unmarried phrase might also additionally be changed with an extraordinary synonym. For instance, the interpretation of the phrase `volume` might also additionally discuss with sound volume, an amount of area or an amount, irrespective of the real context. However, a reader with primary language talents can recognize what the meant that means of the textual content is. At present, gadget translation can properly be used, for instance, for non-public, company-inner verbal exchange and facts sharing, specifically whilst the content material of the textual content desires to be transmitted speedy however the textual content isn't disbursed to a huge audience. It is likewise crucial that each one events are aware about using gadget translation.

5.3. Handling Ethical Issues of Machine Translation:

Machine Translation can produce mistakes and errors that could have an effect on the that means and readability of your message, especially if the languages worried are complicated or distant. MT also can fail to seize the nuances, contexts, and sorts of human language, ensuing in irrelevant or deceptive translations gadget translation have had a robust effect at the translators` work, inflicting a rethinking of the connection of the translator to the customers and the others, in general. While great interest has been paid to the phenomenon of gadget translation

and the brand-new laptop translation tools, much less interest has been paid to the moral troubles bobbing up from the location of the translators in an ever extra hard environment. The present codes of ethics associated with translation and translators' method elements consisting of accountability, confidentiality, first-rate of the quit product, however there's no point out of MT products. On the opposite hand, ethics of the career isn't always covered in maximum of the college curricula, no matter the developing cognizance of the significance of ethics in all regions of society.

5.component of machine translation system:

Machine translation worried numerous additives together with language evaluation translation guidelines convert it into the goal language and language era produces the translated text

Deals with:

5.1. Preprocessing:

Preprocessing refers to the stairs taken to put together information earlier than it is able to be used for evaluation or modeling. In the context of herbal language processing, preprocessing entails obligations like tokenization, eliminating punctuation, changing textual content to lowercase, and eliminating forestall words. These steps assist to easy and arrange the information, making it equipped for similarly evaluation or gadget mastering algorithms. It's like getting the information all neat and tidy earlier than diving into the amusing stuff

5.1.1. Tokenization:

Tokenization is the process of breaking down a piece of text, like a sentence or a paragraph, into individual words or "tokens." These tokens are the basic building blocks of language, and tokenization helps computers understand and process human language by splitting it into manageable units.

For example, tokenizing the sentence "I love ice cream" would result in three tokens: "I," "love," and "ice cream." It's a fundamental step in natural language processing and text analysis tasks. However, is an essential step in herbal language processing, in which textual content is split into smaller gadgets known as tokens. These tokens may be words, phrases, or maybe character characters, relying on the extent of granularity wanted for analysis. Tokenization facilitates in breaking down the textual content and information its structure, making it

less difficult for similarly processing and analysis. It's like breaking a sentence into puzzle portions to higher recognize its meaning.

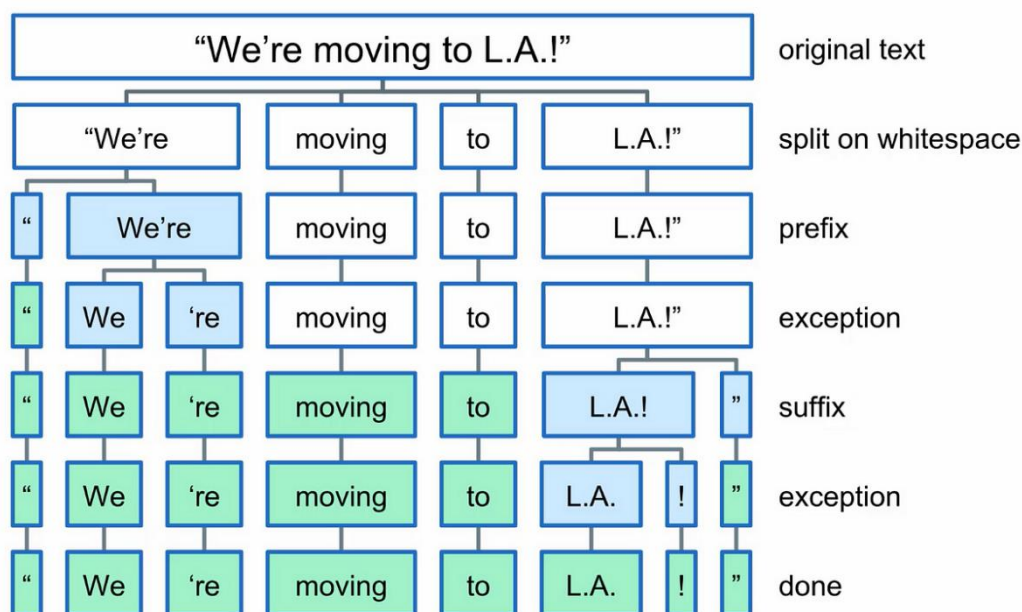


Figure 10. Tokenization in spacey

The textual content is normally cut up into tokens that suit phrases. But the textual content also can be cut up into sub words or characters. The stage of tokenization (or granularity) relies upon at the NLP-project and the goal length for the entire quantity of tokens on your vocabulary. The large the vocabulary length the extra not unusual place phrases you could tokenize and the extra reminiscence you want. The smaller the vocabulary length the extra sub word tokens you want to keep away from having to apply the -UNK- token (unknown).

Above is an instance of a word-stage tokenizer. Techniques for sub word tokenization are regularly used for schooling deep learning fashions and feature names like Word piece, Unigram and Byte Pair Encoding (BPE). For instance, BPE guarantees that the maximum not unusual place phrases can be represented withinside the new vocabulary as an unmarried token, at the same time as much less not unusual place phrases can be damaged down into or extra sub word tokens.

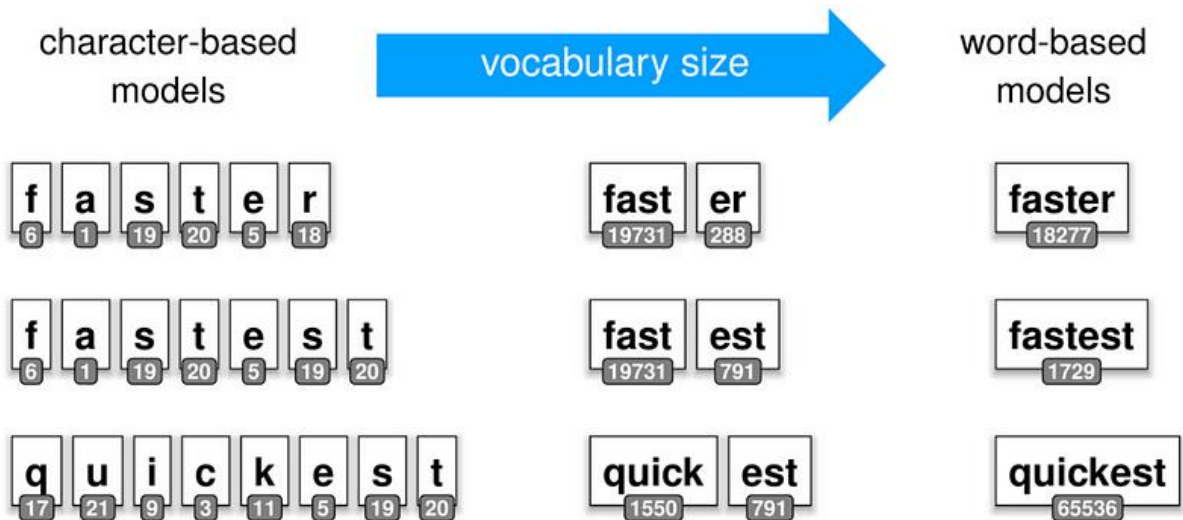


Figure 11. Tokenization levels vs Vocabulary size.

5.1.2 Sentence Segmentation:

is the manner of dividing a paragraph or a bigger textual content into character sentences. It's like placing durations on the quilt of every sentence to split them and cause them to less complicated to analyze. Sentence segmentation is an essential step in herbal language processing, because it enables in numerous language-associated duties like sentiment analysis, device translation, and textual content summarization. It's like breaking down a protracted tale into smaller, digestible parts.

Sentence segmentation that breaks textual statistics strings into individual sentences is a vital section in herbal language processing (NLP). Each phrase withinside the string this is introduced a punctuation mark which include a period, question mark, or exclamation point will become the area for splitting the string. Humans can without difficulty see the punctuation and break up the string into sentences, but not machines. Basically, the 3 punctuation marks also carry out different capabilities so that the sentence segmentation manner must definitely be capable of stumble on whether or not a phrase marked with punctuation is a sentence boundary or now no longer. This study proposes a sentence segmentation machine known as segment Asi Kalima Bahasa Indonesia (SKBI) or Indonesian language sentence segmentation via way of means of making use of a hard and fast of guidelines and may be used in Indonesian texts and may be tailored for English.

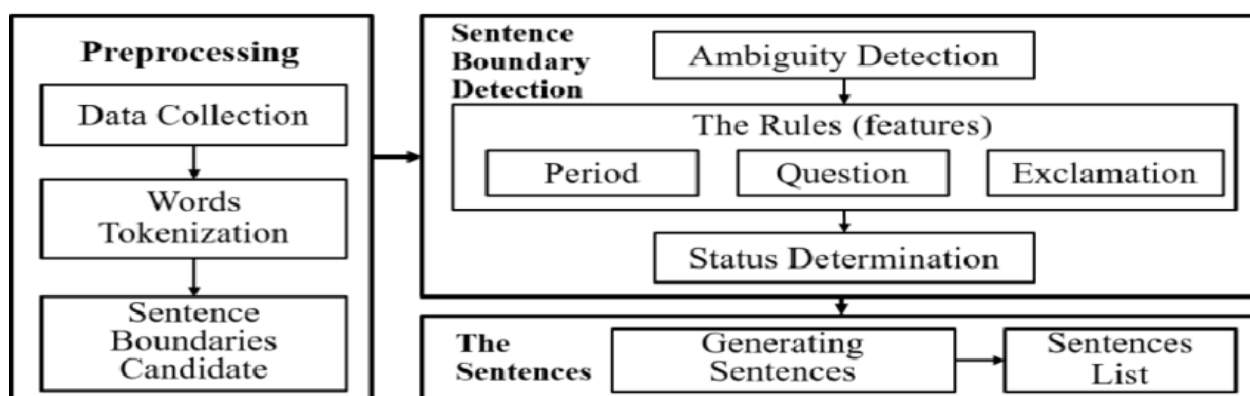


Figure 12. Sentence segmentation.

Sentence segmentation that breaks textual information strings into man or woman sentences is a vital segment in herbal language processing (NLP). Each phrase withinside the string this is introduced a punctuation mark inclusive of a period, query mark, or exclamation point, will become the region for splitting the string. Humans can effortlessly see the punctuation and split

5.1.3 morphological analysis:

In machine translation, morphological analysis performs a vital function in information and translating phrases accurately. By breaking down phrases into their constituent morphemes, gadget translation structures can higher take care of inflectional changes, phrase formation, and grammatical systems in distinct languages. This evaluation enables in producing greater correct and contextually suitable translations. It`s like giving the gadget translation gadget a deeper information of the shape and that means in the back of the phrases.

index	Dic. Wordform number	Prefix number	Suffix number	Precision (%)	Recall (%)	F-score (%)
1	167377	683	1584	87.52	77.14	82.00
2	57046	694	1322	88.42	78.46	83.14
3	14760	373	989	90.57	72.43	80.49

Table 2. English Morphological Analysis with Machine-learned Rules.

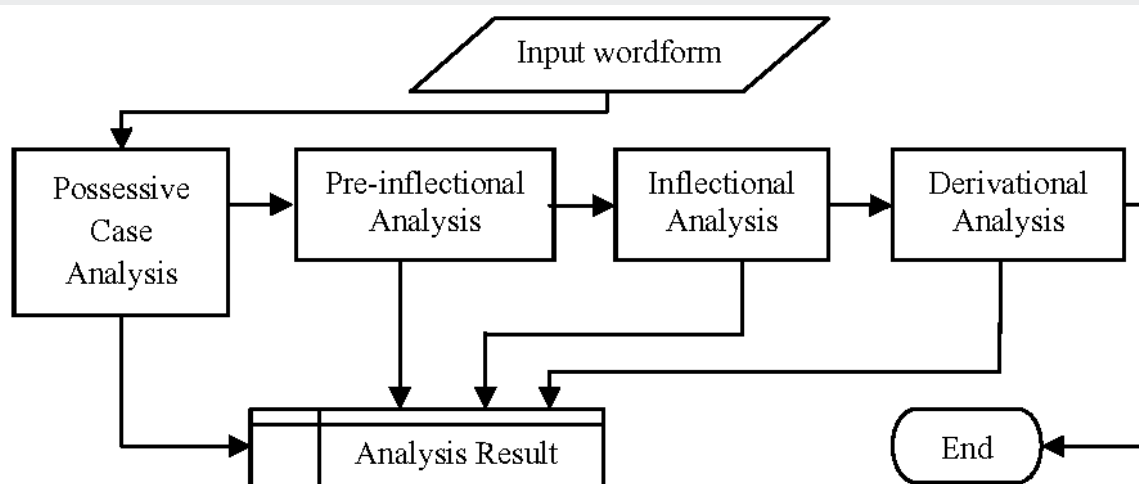


Figure13. Flow Chart for morphological analysis

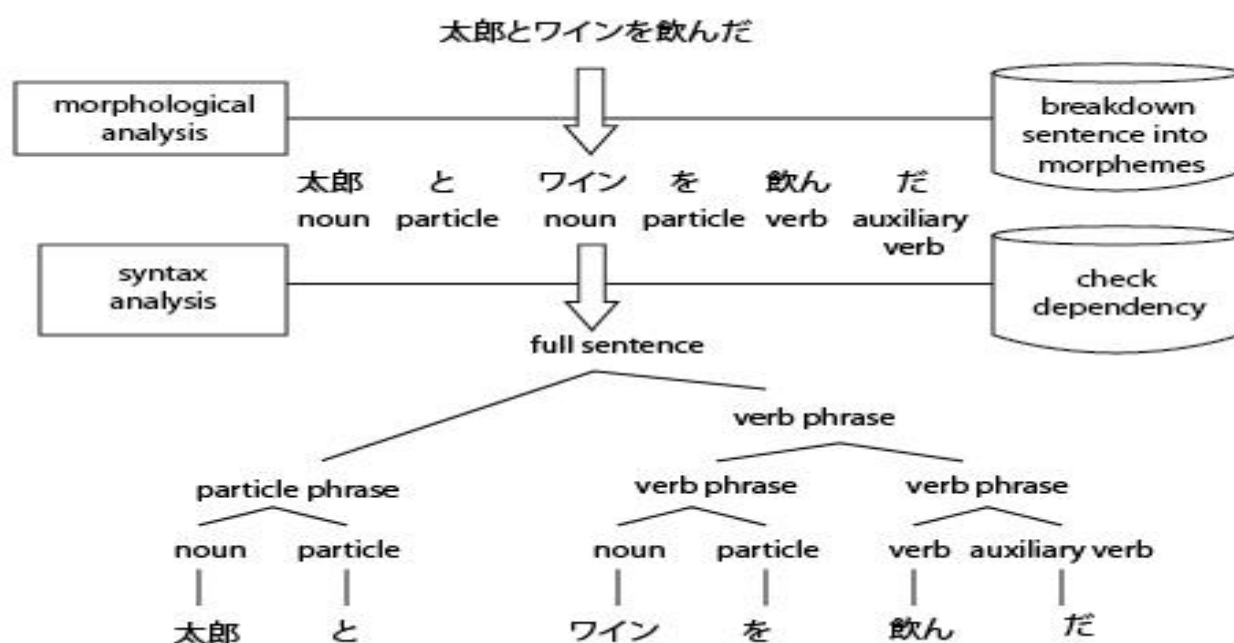


Figure14. An example of morphological analysis and syntax analysis.

5.2 Translation Models:

rule-primarily based totally structures are any other technique used to translate textual content from one language to any other. Rule-primarily based totally structures rely upon predefined linguistic guidelines and dictionaries to investigate the shape of the supply language and generate the corresponding translation withinside the goal language. These guidelines seize grammar, syntax, and semantic records to make sure correct translations. While rule-primarily based totally structures may be powerful for sure language pairs and unique domains, they

will conflict with dealing with complicated sentence systems and idiomatic expressions. It's like following a fixed of language guidelines to create translations!

5.2.1. Statistical model:

in machine translation are any other technique used to translate textual content among languages. These fashions rely upon statistical strategies and algorithms to investigate big quantities of bilingual records and research the styles and relationships among phrases in distinct languages. By studying the frequency and co-incidence of phrases and phrases, statistical fashions can generate translations primarily based totally at the maximum possibly translations given the input. While statistical fashions had been extensively used withinside the past, they had been in large part changed through neural device translation fashions, that have proven higher overall performance in lots of cases. It's like the usage of records and possibilities to make knowledgeable translation decisions

5.2.2. Neural networks:

play a critic crucial position in contemporary-day device translation, especially in neural device translation (NMT) fashions. NMT fashions use deep studying strategies, together with recurrent neural networks (RNNs) or transformer fashions, to research the complicated relationships among phrases and generate translations. These fashions are educated on full-size quantities of bilingual records, permitting them to seize the nuances of language and convey extra correct translations. Neural networks excel at dealing with long-variety dependencies and may seize contextual records, ensuing in extra fluent and natural-sounding translations. It's like coaching a device to apprehend language and translate it with human-like fluency.

6. Machine translation vs human Translation:

Machine translation is almost on the spot and maintains to enhance with the aid of using leaps and limits every day way to using AI. MT additionally has its personal milestones for attention as background. Machine translation commenced in 1949 and has developed from a device to hold tabs on pesky Russian operatives into an on-hand manner to translate the whole thing from pleasantries to directions. User beware: there may be nonetheless enormous room for MT improvement. Smarting has shared tips for a while to apply gadget translation on this informative webinar, however right here are some speedy takeaways: Machine translation hits that candy spot of price and speed, supplying a certainly short manner for manufacturers to

translate their files at scale without a whole lot overhead. But, that doesn't imply it's usually applicable! Meanwhile, professional, human translation is first rate for the ones tasks that require greater care and nuance. Talented translators' paintings for your brand's content material to seize the unique meaning, and bring that feeling or message basically in a brand-new frame of paintings. With the care and knowledge of a human translator, you have to count on to pay a chunk more, however for a better excellent outcome. At the identical time, gadget translation is first rate to leverage for excessive volume, low priority content material, like person reviews, remarks or social posts.

6.1.Collaborating between Machine Translation Systems and Human Translators:

The present have a look at aims at developing a degree of collaboration among MT and HT which will acquire greater manufacturing in translation tasks and shop time, cash and attempt for translators, businessmen and every other non-expert MT customer. This may be performed via way of making use of each pre-modifying and post-modifying at the ST earlier than getting into to MT, in a particular way. Hence, the prevailing has a look at is primarily based totally on drawing near the strategies wherein MT runs and to what volume we are able to make it greater powerful and greater productive. MT customers must recognize that MT consists of kinds; direct and oblique. Direct kind works at the phrase degree at the same time as oblique kinds paintings on better stages (i.e. phrase, sentence stages). On the alternative hand, oblique stages are divided into procedures; switch method that's language -established and interlingua method that's non-linguistic specific. Indirect procedures are able to translating higher than direct method. A machine translation consumer must pay heed to the reality that those procedures run higher due to the fact they're primarily based totally on Statistical translation evaluation after which machine translation generation. In order to advantage greater from MT, facilitate translation technique, and make the TT appear as herbal as possible, every MT consumer must pay heed to the reality that the greater he simplifies the evaluation technique, the greater he receives greater herbal translation. A MT consumer can reap this simplicity within-side the evaluation technique by using pre-modifying ST earlier than filing it to MT. In reality, pre-modifying cannot be executed randomly. Hence, the prevailing has a look at encourages MT customers to apply the guidelines of controlling language to simplify and regulate STs in keeping with their enterprise requirements. This, in turn, alleviates the weight on post-

modifying due to the fact the ST to be entered to Machine translation will become smooth sufficient to be understood via way of machine translation.

7.Strengths and Weaknesses of Machine Translation:

Weakness and strengthen: At a few factors of their life, humans use gadget translation (MT) including Google Translate for diverse functions on their devices. One of the perfect approaches to discover the which means of a phrase or sentence written in an overseas language is via way of means of the usage of MT to translate it. When the usage of MT, all strategies are dealt with via way of means of machines without human intervention. Have you ever used MT to translate something? Do you get true consequences while translating an extended paragraph composed of complicated sentences? Good translation calls for the correct know-how of context and accuracy of equivalents. Machines cannot absolutely update human`s roles. However, over time, the accuracy of MT has increased. That being said, in case you need to get an accurate translation with an impeccable grammatical shape that remains real to the context of the goal language, Prof Ritz is your answer. So, you've got discovered the significance of professional translators` position in terms of using MT. Next, Prof Ritz will listing the strengths and weaknesses of MT below.

Strengths If you continue to need to attempt the usage of MT to your devices, test out more than one blessing of doing so Fast The translation procedure the usage of MT is instantaneous. You can sincerely input the phrase or textual content which you need to translate into the MT, and with only some clicks the interpretation outcomes will appear. Purely in phrases of speed, human translators aren't any healthy for MT. If you want something translated at a moment`s notice, MT can be the appropriate preference for you. Cheap As a remember of fact, the usage of MT is a whole lot less expensive than using the offerings of human translators. There are lots of MT offerings that may be accessed without cost at the Internet, including Google Translate, Microsoft Translator, and Yandex. In addition, there are numerous paid MT offerings that provide diverse features, including the cap potential to decide the diploma of ritual of the interpretation outcomes produced through MT. Weaknesses Before the usage of MT, we need to bear in mind its drawbacks whilst we need to translate an essential document. Here is a listing of MT`s weaknesses: Translation Results are Directly Proportional to the Quality of Source Texts The great of translation outcomes generated through MT is basically decided through the great of the supply texts. If the supply textual content is full of ineffective, illogical, or ambiguous sentences, it's miles nearly positive that the MT`s translation outcomes might be of terrible great. Translation Results Tend to be Literal Currently, MT has now no

longer been capable of well discover the context of a sentence and is much more likely to translate a textual content phrase through phrase. Therefore, the ensuing translations have a tendency to be literal. This will now no longer be a hassle if the wording and terms of the supply textual content are simple, as may be visible in commands for running a chunk of equipment, which can be usually written remember-of fatly. However, for innovative texts including articles, advertisements, or fiction works, possibilities are the translations produced through MT will experience stilted or maybe awkward to read. This is specifically real for fiction works which can be riddled with metaphors and idioms. The Risk of Leaked Document Confidentiality The use of unfastened MT comes with its very own risk, specifically robbery of essential statistics or facts from a document. As quoted from Elite Asia`s article, a Norwegian agency, NRK, discovered the case of statistics robbery at Translate.com due to the fact one consumer used an unfastened translation application, Microsoft Translator. Hence, do now no longer use MT if there's essential facts for your document. Ultimately, despite the fact that MT is a totally beneficial era that makes it clean for customers to translate a textual content or document, human translators` position continues to be very a whole lot had to make sure that there aren't any minor or essential errors withinside the translation outcomes.

7.1. Benefit of Machine Translation Usage:

Benefits of Machine translation software program has advanced immensely during the last few many years and the cutting-edge breed of AI translation tools, the use of neural networks, at the moment are able to getting to know and enhancing with the aid of using themselves. As a result, the listing of gadget translation blessings is developing and their cost will increase because the era maintains to improve. Speed The key advantage of gadget translation is its cap potential to translate content material speedy and, in a few cases, nearly instantly. Scale Enterprise gadget translation structures can take care of massive volumes of content material tirelessly. Cost-effectiveness Speed, automation and elevated scale produce an extra cost-powerful translation process. Flexibility Modern gadget translation structures can manipulate dozens or loads of most important languages. Integrations Machine translation integrates with different era, inclusive of translation reminiscence and terminology control to decorate speed, best and consistency. Constant development While gadget translation has its limitations, the contemporary era is continuously enhancing and growing the cost of its blessings. When carried out with a post-enhancing step (especially mild or standard) or a translation reminiscence, gadget translation can leverage the best of the gadget-translated output, main to decreased costs, quicker turnaround instances and higher content material best. Machine translation with

post-enhancing allows translation businesses like ourselves to finish a given venture quicker, manipulate large workloads and content material, even as passing the financial savings directly to our customers

7.1.1. Quickness and effectiveness:

Quickness and effectiveness of Machine translation has made good sized strides in phrases of each pace and effectiveness. With the improvements in neural system translation fashions, translations can now be generated fast without sacrificing quality. These fashions are educated on giant quantities of bilingual data, permitting them to seize the nuances of language and convey greater correct translations. While there may also nevertheless be occasional mistakes or demanding situations with complicated texts, system translation has grown to be a precious device for short and powerful communicate throughout languages. It's tremendous how era has made language boundaries much less of an obstacle.

7.1.2. Managing Large Textual Quantities:

Managing large textual quantities in machine translation may be a complicated task. Machine translation structures want get right of entry to considerable bilingual statistics to correctly research the styles and relationships among phrases in one-of-a-kind languages. These statistics can encompass parallel corpora, which might be huge collections of translated texts. By schooling on those substantial quantities of statistics, gadget translation fashions can higher recognize the nuances of language and convey extra correct translations. However, processing and storing such huge portions of textual content can require extensive computational resources. It's a hard however essential component of constructing strong gadget translation structures

7.2. Challenges and limitations:

7.2.1. Ignorance of context:

To recognize and infer which means in language, neural text models should study complex nuances. Discovering extraordinary linguistic phenomena from records isn't always a smooth assignment. For example, lexical ambiguity is an essential characteristic of language that is tough to study. Even greater prominently, inferring the that means of uncommon and unseen lexical devices is hard with neural networks. Meaning is regularly decided from context. With context, languages permit that means to be conveyed even if the unique phrases used aren't acknowledged with the aid of using the reader. To version this mastering system, a machine has to study from some times in context and be capable of generalize properly to unseen cases.

The mastering system is hindered whilst schooling records is scarce for an assignment. Even with enough records, mastering styles for the lengthy tail of the lexical distribution is tough. In this thesis, we attention on know-how positive potentials of contexts in neural fashions and layout augmentation fashions to advantage from them. We attention on device translation as a crucial example of the greater well known language know-how hassle. To translate from a supply language to a goal language, a neural version has to recognize the that means of components withinside the furnished context and generate components with the equal meanings withinside the goal language. This assignment accentuates the cost of taking pictures nuances of language and the need of generalization from few observations. The principal hassle we observe on this thesis is what neural device translation fashions study from records and the way we will devise greater centered contexts to decorate this mastering. Looking greater intensity into the function of context and the effect of records on mastering fashions is critical to increase the NLP field. Moreover, it allows spotlight the vulnerabilities of present-day neural networks and affords insights into designing greater sturdy fashions.

In conclusion, Machine Translation (MT) has become a very interested device in acquisition and translation of languages as it has made available to students easy and swift means of translating more than one foreign language. Programs like Google Translate and Microsoft Translator, among others, have changed the translation approach by enabling clients to translate a significantly large volume of text in real time making them helpful to both learners and professionals in language. Otherwise, in spite of their high reliability and rapidly increasing efficiency, MT systems still encounter significant problems. They frequently struggle with context, idioms, and culture-specific terms, resulting in mistranslations or uncoordinated translations. This gap is exemplified by the fact that due to the rigid character of machine translation, the original meaning of the source message is lost or skewed in most situations, especially in more advanced translations. While MT tools offer adequate assistance for not one-year students of English Master program in Ibn Khaldun University, essentially there is a need to emphasize the importance of human influence in making them contextually appropriate and sociocultural sensitive. Therefore, when students turn in translation assignments, they should not depend too much on them.

Chapter Three

CHAPTER THREE

1. Introduction:

The purpose of this study is to investigate the ability of artificial intelligence and Google translation machines to correctly translate neologisms from Arabic into English. Neologisms are newly created words that have not yet been widely used and can pose a challenge for both translators and language learners. English is known for being the current lingua franca, allowing it to expand its linguistic scope. Therefore, as mentioned in previous chapters, English is one of the languages that sees a large number of neologisms every year. It is important to understand how well learners of English as a foreign language can interpret, translate, and use these new words correctly.

To achieve this objective, 6 Arabic sentences containing neologisms were used and translated. Artificial intelligence served as the first translator, aiming to assess **CHAT GPT**'s knowledge of the concept of neologisms. The second translator was **YANDEX TRANSLATION**, aiming to explore its familiarity with neologisms in English, to provide insight into the ability of AI and translation machines to accurately convey meaning in the target language.

The results of this study will provide insights into the abilities and challenges faced by AI and translation machines in using neologisms in English.

2. Research Design

The research design of this study is based on a mixed-methods approach that includes both qualitative and quantitative data. The study will use artificial intelligence **CHAT GPT** and translation machines **YANDEX TRANSLATION** to perform an open-ended translation task.

3. Research Methodology

The research methodology of this study will be a combination of artificial intelligence **CHAT GPT** and translation machines **YANDEX TRANSLATION**, both performing an open-ended translation task to collect qualitative and quantitative data.

1- تُعد تقنية الذكاء الاصطناعي تقنية استراتيجية حتمية تعمل على الحصول على كفاءة أكبر وفرص جديدة للدخل وتعزيز ولاء العملاء. كما أنها تتحول بسرعة إلى ميزة تنافسية للعديد من المؤسسات.

Text 1 Ai Translation: ChatGPT

"Artificial intelligence technology is an inevitable strategic technology that drives greater efficiency, creates new revenue opportunities, and enhances customer loyalty. Additionally, it is rapidly becoming a competitive advantage for many organizations."

Text 2 Machine translation: Yandex Translate

Artificial intelligence technology is an imperative strategic technology that serves to obtain greater efficiency, new income opportunities and enhance customer loyalty. It is also rapidly turning into a competitive advantage for many enterprises.

3. Analysis:

The sample text discusses the role of artificial intelligence (AI) as a strategic technology that enhances efficiency, creates new opportunities, and strengthens customer loyalty. It highlights AI's potential as a competitive advantage for organizations.

- **Comparison of Translations:**

- Text 1 AI Translation:

- "Artificial intelligence technology is an inevitable strategic technology that drives greater efficiency, creates new revenue opportunities, and enhances customer loyalty. Additionally, it is rapidly becoming a competitive advantage for many organizations."

- Text 2 Machine Translation: **

- "Artificial intelligence technology is an imperative strategic technology that serves to obtain greater efficiency, new income opportunities and enhance customer loyalty. It is also rapidly turning into a competitive advantage for many enterprises."

- **Differences in Wording:**

1. Term Usage:

- Text 1: Uses "inevitable strategic technology," implying that AI technology is a necessary and unavoidable development in strategy.

- Text 2: Uses "imperative strategic technology," suggesting that AI is crucial but potentially less definitive than "inevitable."

2. Phrasing:

- Text 1: "Drives greater efficiency," and "creates new revenue opportunities" imply that AI directly contributes to these outcomes.

- Text 2: "Serves to obtain greater efficiency," and "new income opportunities" are more passive in construction, potentially implying that AI facilitates these outcomes rather than directly driving them.

3. Terminology:

- Text 1: "Revenue opportunities" is used, which is more commonly associated with financial gains.

- Text 2: "Income opportunities" is used, which could be seen as less specific compared to "revenue."

4. Article Usage:

- Text 1: Uses "many organizations," which is a broad term but specific enough to indicate various types of entities.

- Text 2: Uses "many enterprises," which may imply a more formal or business-oriented context compared to "organizations."

- Analysis of Core Message:

Despite these differences, the core message remains consistent across both translations. Both texts highlight the importance of AI as a strategic technology that boosts efficiency, opens new opportunities, and provides a competitive edge. The variations in wording and article usage do not significantly alter the fundamental meaning, though they might affect the nuance or perceived specificity of the content.

The word إستراتيجية حتمية:

The word إستراتيجية حتمية	
ChatGPT	Yandex Translate
inevitable strategic technology	imperative strategic technology

Both translations convey an acceptable meaning, but the word "imperative" in Yandex may mean "urgent" or "necessary" rather than "inevitable," so the word "inevitable" is more accurate.

The word فرص جديدة للدخل:

The word فرص جديدة للدخل	
ChatGPT	Yandex Translate
new revenue opportunities	new income opportunities

In a literal translation, "revenue" is closer to the concept of income related to organizations or companies, while "income" usually refers to individual earnings or salaries. Therefore, "revenue" is more accurate here.

The word تحول إلى ميزة تنافسية:

The word تحول إلى ميزة تنافسية	
ChatGPT	Yandex Translate
becoming a competitive advantage	turning into a competitive advantage

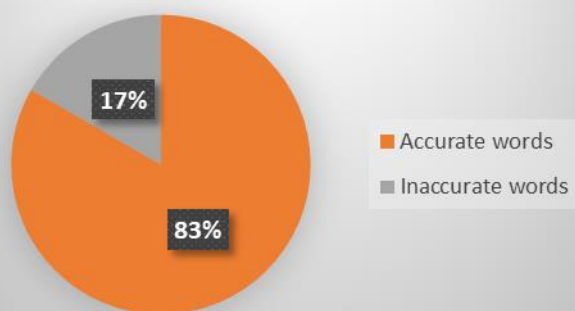
The two translations are similar in meaning, but "becoming" is more accurate than "turning into" as it suggests a more gradual, natural transformation.

Accurate words compared to the original text:

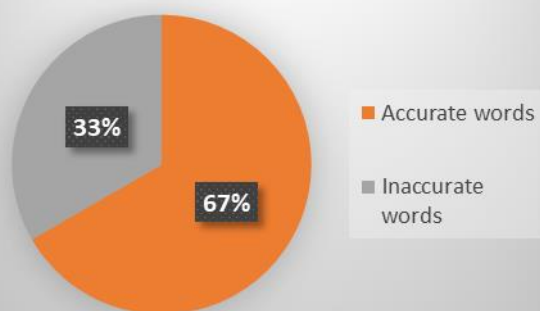
The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	05	83%	Accurate words	04	66%
Inaccurate words	01	17%	Inaccurate words	02	34%
Total	06	100%	Total	06	100%

ChatGPT's translation is more accurate in using business and technology-related terminology, while Yandex's translation contains some words that may be suitable in other contexts but are less accurate when discussing business.

Chat Gpt



Yandex Translate



2- تعمل تكنولوجيا الذكاء الاصطناعي على تحسين أداء المؤسسات وإنتاجيتها عن طريق أتمتة العمليات أو المهام التي كانت تتطلب القوة البشرية كما انه يساعد على فهم البيانات على نطاق واسع لا يمكن لأي إنسان تحقيقه. وهذه القدرة يمكن أن تعود بمزايا كبيرة على الأعمال.

Text 1 Ai Translation: ChatGPT

"Artificial intelligence technology enhances organizational performance and productivity by automating processes or tasks that previously required human effort. It also aids in understanding data on a scale that no human could achieve. This capability can bring significant advantages to businesses."

Text 2 Machine translation: Yandex Translate

Artificial intelligence technology improves the performance and productivity of organizations by automating processes or tasks that used to require human strength, and it also helps to understand data on a large scale that no human can achieve. And this ability can bring significant advantages to the business

3. Analysis:

The sample text highlights how artificial intelligence (AI) enhances organizational performance and productivity by automating tasks previously dependent on human labor and by facilitating the analysis of large-scale data. It emphasizes the significant benefits AI can bring to businesses.

Comparison of Translations:

- Text 1 AI Translation:

- "Artificial intelligence technology enhances organizational performance and productivity by automating processes or tasks that previously required human effort. It also aids in understanding data on a scale that no human could achieve. This capability can bring significant advantages to businesses."

- Text 2 Machine Translation:

Artificial intelligence technology improves the performance and productivity of organizations by automating processes or tasks that used to require human strength, and it also helps to understand data on a large scale that no human can achieve. And this ability can bring significant advantages to the business."

Differences in Wording:

1. Term Usage:

- Text 1: Uses "enhances organizational performance" and "human effort," which may imply a focus on improving overall performance and general human labor.
- **Text 2: Uses "improves the performance and productivity of organizations" and "human strength," which might emphasize physical labor and organizational productivity more explicitly.

2. Phrasing:

- Text 1: "Automating processes or tasks that previously required human effort" provides a clear connection between AI and the reduction of human labor.
- Text 2: "Automating processes or tasks that used to require human strength" suggests a more literal or physical sense of human labor, which might not fully capture the broader scope of human effort.

3. Additional Clauses:

- Text 1: "It also aids in understanding data on a scale that no human could achieve" is smoothly integrated into the sentence.
- Text 2: The clause "And this ability can bring significant advantages to the business" starts with "And," which can sound more conversational but might be less formal in written contexts. Additionally, "the business" is less specific than "businesses," which could imply a broader application.

Analysis of Core Message:

Both translations convey the central idea that AI significantly boosts organizational performance and productivity by automating tasks and analyzing large-scale data. Despite slight variations in wording and phrasing, the core message remains consistent.

- Text 1 uses terminology and phrasing that might be more formal and precise, focusing on "human effort" and "organizational performance."
- Text 2 uses terms like "human strength" and "the business," which might be seen as less formal or specific.

Overall, the differences in wording and phrasing do not substantially change the overall meaning of the text, though they may influence the tone or clarity of the message.

The word القوة البشرية

The word القوة البشرية	
ChatGPT	Yandex Translate
human effort	human strength

The word "effort" (human effort) is more accurate in this context compared to "strength" (human strength), as the Arabic text refers to tasks that require effort rather than physical strength.

The word نطاق واسع:

The word نطاق واسع	
ChatGPT	Yandex Translate
on a scale	on a large scale

The two translations are similar, but "on a large scale" is more accurate because "نطاق واسع" refers to a large size, not just a general scale.

The word الأعمال:

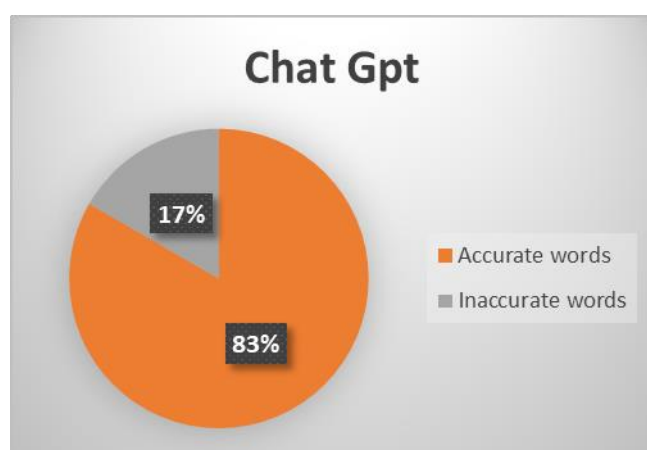
The word الأعمال	
ChatGPT	Yandex Translate
businesses	the business

The word "businesses" is more accurate because it refers to businesses in general (plural), while "the business" might imply a single, specific business.

Accurate words compared to the original text:

The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	05	83%	Accurate words	04	66%
Inaccurate words	01	17%	Inaccurate words	02	34%
Total	06	100%	Total	06	100%

ChatGPT's translation is more accurate in using the appropriate terminology for the business and technology context, while Yandex's translation has some discrepancies in word choice that may be suitable in other contexts but are less accurate here.



3- تعتمد الترجمة العصبية على الشبكات العصبية العميقة لترجمة النصوص بين اللغات. على سبيل المثال، يستخدم نظام الترجمة من Google الذكاء الاصطناعي لفهم سياق الجمل وتحليل النصوص للحصول على ترجمة أكثر دقة وطبيعية

Text 1 Ai Translation: ChatGPT

"Neural translation relies on deep neural networks to translate texts between languages. For example, Google's translation system uses artificial intelligence to understand the context of sentences and analyze texts to achieve more accurate and natural translations."

Text 2 Machine translation: Yandex Translate

Neural translation relies on deep neural networks to translate texts between languages. For example, the Google Translate system uses artificial intelligence to understand the context of sentences and analyze texts for a more accurate and natural translation

3. Analysis

The sample text discusses how neural translation, utilizing deep neural networks, improves text translation between languages. It specifically mentions Google Translate as an example of a system that employs artificial intelligence to achieve more accurate and natural translations.

Comparison of Translations:

- Text 1 AI Translation:

- "Neural translation relies on deep neural networks to translate texts between languages. For example, Google's translation system uses artificial intelligence to understand the context of sentences and analyze texts to achieve more accurate and natural translations."

- Text 2 Machine Translation:

- "Neural translation relies on deep neural networks to translate texts between languages. For example, the Google Translate system uses artificial intelligence to understand the context of sentences and analyze texts for a more accurate and natural translation."

Differences in Wording:

1. Phrasing:

- Text 1: "Analyze texts to achieve more accurate and natural translations" uses "to achieve" which emphasizes the purpose or result of the analysis.

- Text 2: "Analyze texts for a more accurate and natural translation" uses "for" which might imply a more straightforward connection between analysis and the goal of accuracy and naturalness.

2. Article Usage:

- Text 1: "More accurate and natural translations" suggests a focus on the plural form, indicating multiple instances of translation.

- Text 2: "A more accurate and natural translation" refers to the singular form, suggesting a focus on a single instance of translation or a general improvement in translation quality.

3. Specificity:

- Text 1: Uses "translations" which could be interpreted as referring to multiple translations or the process in general.

- Text 2: Uses "translation," which might be perceived as referring to the singular or overall quality of translation.

Analysis of Core Message:

Both translations effectively convey the central idea that neural translation relies on deep neural networks and artificial intelligence to improve translation accuracy and naturalness.

- Text 1 suggests a plural or general focus on translations, potentially emphasizing multiple translation instances or the broader impact on the translation process.

- Text 2 uses the singular form "translation," which might imply a focus on the overall quality or a specific instance of translation.

Overall, while there are slight differences in wording and article usage, the core message about the role of neural networks and artificial intelligence in enhancing translation remains consistent across both translations.

The word **نظام الترجمة من Google**:

The word نظام الترجمة من Google	
ChatGPT	Yandex Translate
Google's translation system	the Google Translate system

The translation in ChatGPT is more accurate because it refers to the system in general ("Google's translation system"), while Yandex uses the specific name of the service ("Google Translate").

The word للحصول على ترجمة أكثر دقة وطبيعية

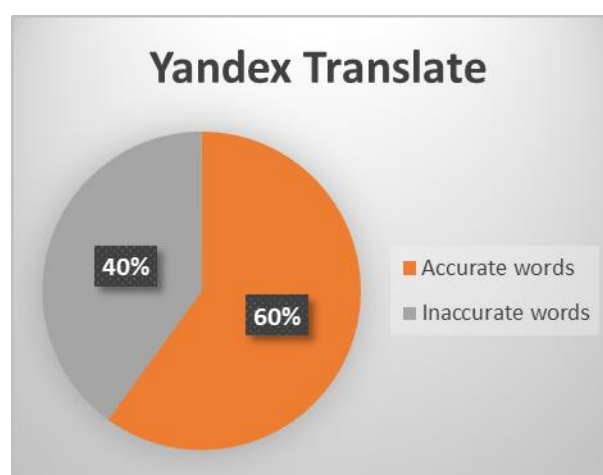
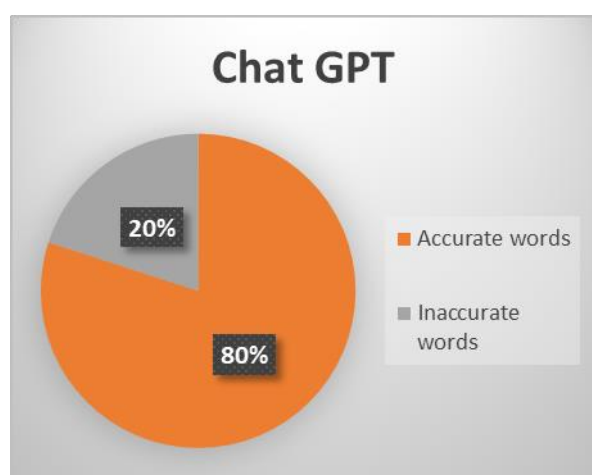
للحصول على ترجمة أكثر دقة وطبيعية	
ChatGPT	Yandex Translate
to achieve more accurate and natural translations	for a more accurate and natural translation

In the first translation, the plural form "translations" is used, which reflects the accuracy of translation as a multiple-process activity, while in the second, the singular form "translation" is used, which may be less precise in this context.

Accurate words compared to the original text:

The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	04	80%	Accurate words	03	60%
Inaccurate words	01	20%	Inaccurate words	02	40%
Total	05	100%	Total	05	100%

ChatGPT's translation is more accurate in using terminology related to the system in general and translation as a multiple-process activity, while Yandex's translation contains some discrepancies in word choice that may be less precise in this context.



4- تدمج أنظمة الترجمة المدعومة بالذكاء الاصطناعي نماذج لغوية متقدمة لإنتاج ترجمات أكثر دقة وسياقاً.

Text 1 Ai Translation: ChatGPT

"AI-powered translation systems integrate advanced language models to produce more accurate and contextually relevant translations."

Text 2 Machine translation: Yandex Translate

AI-powered translation systems integrate advanced language models to produce more accurate and contextual translations

3. Analysis:

The sample text discusses the role of AI-powered translation systems in improving translation accuracy and contextual relevance by integrating advanced language models.

Comparison of Translations:

- Text 1 AI Translation:

- "AI-powered translation systems integrate advanced language models to produce more accurate and contextually relevant translations."

- Text 2 Machine Translation:

- "AI-powered translation systems integrate advanced language models to produce more accurate and contextual translations."

Differences in Wording:

1. Adjective Usage:

- Text 1: Uses "contextually relevant" to describe translations, emphasizing that the translations are not only accurate but also appropriate to the context in which they are used.

- Text 2: Uses "contextual" to describe translations, which implies that the translations consider the context but may not fully capture the idea of relevance as clearly as "contextually relevant."

2. Specificity:

- Text 1: The phrase "contextually relevant" suggests a more nuanced understanding of the translation's appropriateness in various contexts.

- Text 2: The term "contextual" might be seen as more general or less precise in conveying the idea of relevance in different contexts.

Analysis of Core Message:

Both translations convey the central idea that AI-powered translation systems use advanced language models to improve translation accuracy and contextual understanding.

- Text 1 provides a more detailed description with "contextually relevant," which might better capture the nuances of how these systems enhance translation quality by considering the broader context.
- Text 2 uses "contextual," which is more straightforward but might lack the depth implied by "contextually relevant."

Overall, the core message about the integration of advanced language models to achieve better translation accuracy and contextual understanding is maintained in both texts. The differences in wording may affect the perceived depth and precision of the translation's contextual appropriateness.

The word سياق:

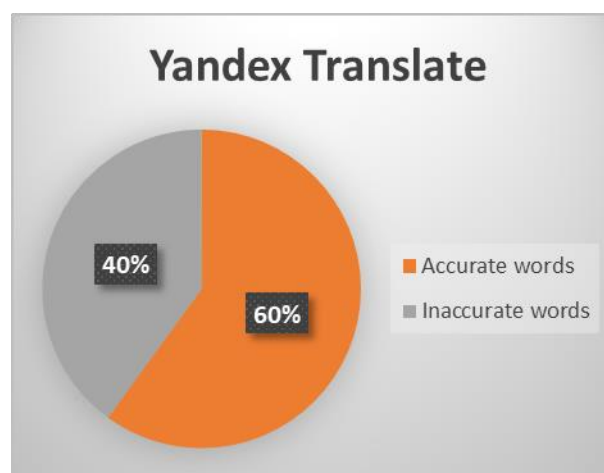
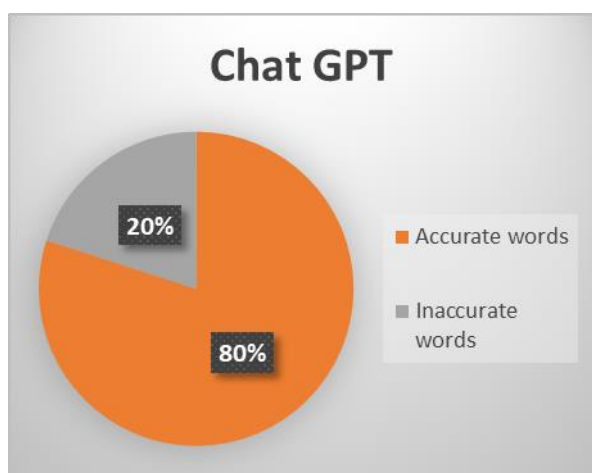
The word سياق	
ChatGPT	Yandex Translate
contextually relevant	Contextual

The translation in ChatGPT better reflects the accuracy of context with "contextually relevant" compared to "contextual" in Yandex, as "contextually relevant" indicates that the translation is properly aligned with the context.

Accurate words compared to the original text:

The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	04	80%	Accurate words	03	60%
Inaccurate words	01	20%	Inaccurate words	02	40%
Total	05	100%	Total	05	100%

ChatGPT's translation is more accurate in using context-related terminology, as "contextually relevant" better reflects translation accuracy compared to "contextual," which may be less precise in this context.



5- يتكيف الذكاء الاصطناعي في الترجمة مع الخصوصيات اللغوية، مما يؤدي إلى المزيد من الترجمات الاصطلاحية والطبيعية

Text 1 Ai Translation: ChatGPT

"Artificial intelligence in translation adapts to linguistic nuances, resulting in more idiomatic and natural translations."

Text 2 Machine translation: Yandex Translate

Artificial intelligence in translation adapts to linguistic peculiarities, which leads to more idiomatic and natural translations.

3. Analysis:

Analysis for Example 02:

The sample text discusses how artificial intelligence (AI) in translation adapts to linguistic characteristics, leading to more idiomatic and natural translations.

Comparison of Translations:

- Text 1 AI Translation:

- "Artificial intelligence in translation adapts to linguistic nuances, resulting in more idiomatic and natural translations."

- Text 2 Machine Translation:

- "Artificial intelligence in translation adapts to linguistic peculiarities, which leads to more idiomatic and natural translations."

Differences in Wording:

1. Term Usage:

- Text 1: Uses "linguistic nuances," which suggests subtle or fine distinctions in language.
- Text 2: Uses "linguistic peculiarities," which refers to unique or distinctive features of language.

2. Phrasing:

- Text 1: "Resulting in more idiomatic and natural translations" uses "resulting in," indicating a direct outcome of the adaptation.
- Text 2: "Which leads to more idiomatic and natural translations" uses "which leads to," implying a causal relationship between adaptation and the quality of translations.

3. Connotation:

- Text 1: "Linguistic nuances" may be perceived as focusing on subtle variations and refinements in language.

- Text 2: "Linguistic peculiarities" might emphasize distinctive or unusual aspects of language, which could be seen as less subtle than "nuances."

Analysis of Core Message:

Both translations convey the idea that AI in translation systems adjusts to specific language features to produce translations that are more idiomatic and natural.

- Text 1 uses "linguistic nuances," which emphasizes the subtlety of the language adjustments made by AI. This might be seen as highlighting the sophistication and precision of the adaptation process.

- Text 2 uses "linguistic peculiarities," which focuses on unique or distinctive features, potentially implying that the AI addresses more noticeable or specific aspects of language.

Despite the differences in terminology, both texts successfully communicate the main concept that AI enhances translation quality by adapting to various language characteristics, resulting in translations that feel more natural and idiomatic.

The word الخصوصيات اللغوية

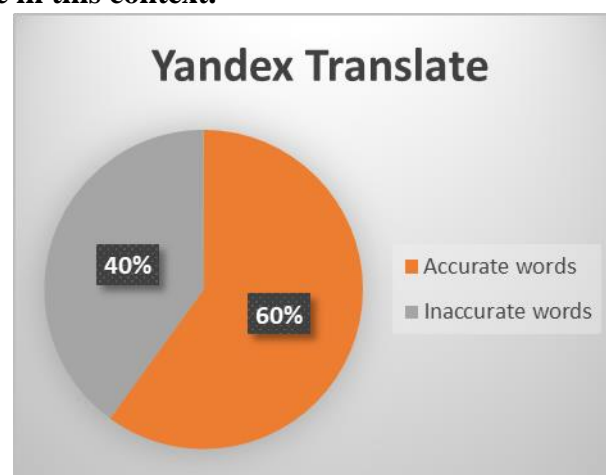
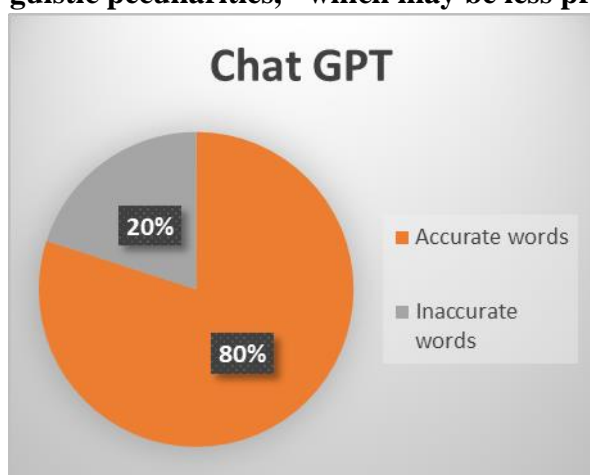
The word الخصوصيات اللغوية	
ChatGPT	Yandex Translate
linguistic nuances	linguistic peculiarities

ChatGPT's translation uses "linguistic nuances," which better reflects the subtleties and precision of linguistic peculiarities compared to "linguistic peculiarities" in Yandex, where "peculiarities" might refer to unusual or strange characteristics.

Accurate words compared to the original text:

The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	04	80%	Accurate words	03	60%
Inaccurate words	01	20%	Inaccurate words	02	40%
Total	05	100%	Total	05	100%

ChatGPT's translation is more accurate in using terminology related to linguistic subtleties, as "linguistic nuances" better reflects translation accuracy compared to "linguistic peculiarities," which may be less precise in this context.



6- قد تكون الترجمة الآلية التقليدية في بعض الأحيان بلا معنى بسبب اعتمادها على قواعد نحوية صارمة، على عكس الأنظمة المعتمدة على الذكاء الاصطناعي.

Text 1 Ai Translation: ChatGPT

"Traditional machine translation can sometimes produce nonsensical results due to its reliance on rigid grammatical rules, unlike AI-based systems."

Text 2 Machine translation: Yandex Translate

Traditional machine translation can sometimes be meaningless due to its reliance on strict grammar rules, unlike AI-based systems

3. Analysis:

Analysis for Example 02:

The sample text contrasts traditional machine translation with AI-based systems, highlighting how traditional methods can produce nonsensical translations due to their reliance on rigid grammatical rules.

Comparison of Translations:

- Text 1 AI Translation:

- "Traditional machine translation can sometimes produce nonsensical results due to its reliance on rigid grammatical rules, unlike AI-based systems."

- Text 2 Machine Translation:

- "Traditional machine translation can sometimes be meaningless due to its reliance on strict grammar rules, unlike AI-based systems."

Differences in Wording:

1. Phrasing:

- Text 1: Uses "produce nonsensical results," which conveys the idea that the output can be incoherent or illogical.

- Text 2: Uses "be meaningless," which suggests that the output lacks significance or usefulness.

2. Adjective Usage:

- Text 1: "Rigid grammatical rules" implies a strict and inflexible approach to grammar.

- Text 2: "Strict grammar rules" conveys a similar idea but may not imply as much rigidity as "rigid grammatical rules."

3. Connotation:

- Text 1: "Nonsensical results" may evoke a stronger sense of absurdity or lack of coherence in the translations.

- Text 2: "Meaningless" might suggest that the translations do not convey useful or comprehensible information, which can be less descriptive of the quality issues.

Analysis of Core Message:

Both translations address the issue of traditional machine translation producing fewer effective translations due to strict grammatical rules and contrast this with AI-based systems.

- Text 1 emphasizes the potential for "nonsensical results," which highlights the problem of coherence and meaning in translations produced by traditional methods. The use of "rigid grammatical rules" adds a nuance of inflexibility.

- Text 2 uses "meaningless" to describe the output, which can imply a lack of significance or utility, and "strict grammar rules," which is slightly less strong than "rigid."

Overall, despite minor differences in phrasing and adjective choice, both texts communicate the central idea that traditional machine translation struggles with coherence and meaning due to its rigid grammatical approach, whereas AI-based systems offer improvements in these areas.

The word بلا معنى

The word بلا معنى	
ChatGPT	Yandex Translate
nonsensical results	Meaningless

ChatGPT's translation uses "nonsensical results," which more accurately reflects the idea of "بلا معنى" compared to "meaningless" in Yandex, as "meaningless" may be less precise in describing an incomprehensible or illogical result.

The word للحصول على ترجمة أكثر دقة وطبيعية

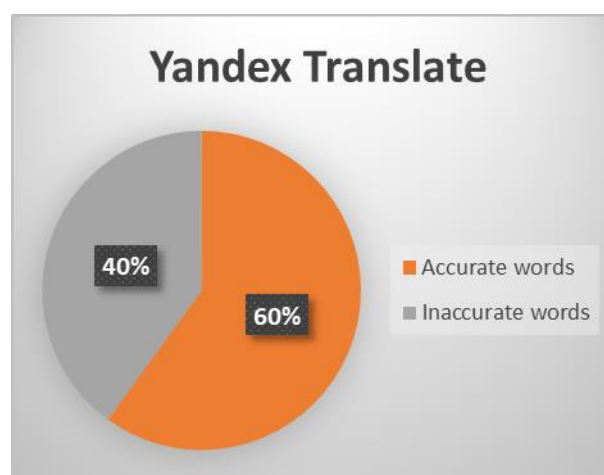
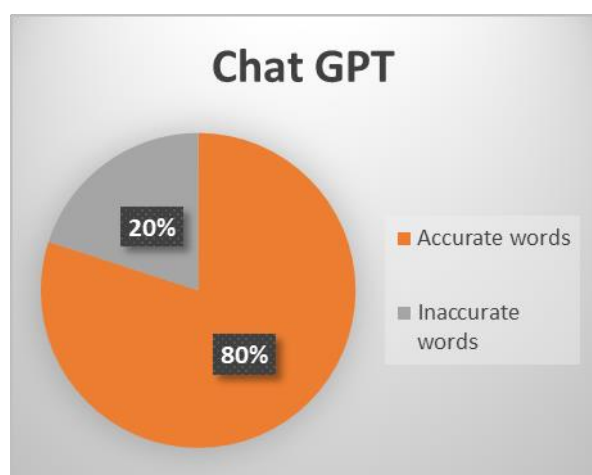
The word للحصول على ترجمة أكثر دقة وطبيعية	
ChatGPT	Yandex Translate
rigid grammatical rules	strict grammar rules

ChatGPT's translation uses "rigid grammatical rules," which better reflects the meaning of "صعبة التغيير" compared to "strict grammar rules" in Yandex, as "strict" may not fully convey the rigidity of the rules.

Accurate words compared to the original text:

The word					
ChatGPT			Yandex Translate		
The word	frequency	%	The word	frequency	%
Accurate words	04	80%	Accurate words	03	60%
Inaccurate words	01	20%	Inaccurate words	02	40%
Total	05	100%	Total	05	100%

ChatGPT's translation is more accurate in using terminology related to nonsensical results and grammatical rules, as "nonsensical results" and "rigid grammatical rules" better reflect the accuracy of the original text compared to "meaningless" and "strict grammar rules" in Yandex's translation.



GENERAL CONCLUSION

General conclusion

This study aimed to investigate the comparative roles of Artificial Intelligence (AI) and Machine Translation (MT) in developing students' learning skills, focusing on their mental impact, limitations, and best use cases. Both AI and MT have become indispensable tools in modern education, each playing complementary roles to address different student needs.

AI, with its broader scope, offers adaptive learning, personalized assistance, and automation of routine educational tasks, providing students with tailored support throughout their learning journey. AI-powered tools help improve productivity, accelerate research, and deliver instant feedback, which enhances student engagement and fosters better academic performance. Its adaptability and wide range of applications make it suitable for various educational contexts, particularly in assisting students with time management, problem-solving, and personalized study plans.

On the other hand, MT focuses on language accessibility, enabling students to overcome linguistic barriers that might hinder their access to global knowledge. It facilitates real-time translation of text, speech, and entire documents, making it easier for students to engage with materials written in foreign languages. For students involved in language studies or international research, MT is a valuable resource by quickly bridging language gaps, though its limitations—especially with rare words, complex grammatical structures, and contextual nuances—remain a challenge.

This comparative study reveals that while AI is better suited for enhancing a wide range of educational functions, MT is crucial for making education more inclusive, particularly for non-native speakers or students dealing with multilingual resources. Both technologies address distinct educational needs, and their combined usage offers students a more enriched and accessible learning environment.

In summary, the goal of this study is to compare AI and MT in terms of speed, ease of use, and effectiveness. For example, we compared two applications, Google Translate and Yandex, by selecting random citations and observing the differences between the two. Additionally, this research aims to provide valuable insights into the current state of AI and MT in translation, inform decision-making processes for selecting appropriate technologies, and guide future research and development efforts in this field.

The comparative study of AI and MT for students, particularly in linguistic analysis, seeks to evaluate the efficacy, implications, and potential applications of these technologies in language learning and development. It specifically analyzes the impact and effectiveness of AI and MT within the context of language learning and investigates how these technologies can be integrated into language curricula to enhance pedagogical practices, adapt to diverse learning styles, and promote engagement and active participation.

Limitations:

- ❖ We have found a lot of difficulties during the research: references are too limited.
- ❖ A lot of complex words (scientific vocabulary).
- ❖ Machine translation and artificial intelligences are approximately the same usage and benefits, it's hard to distinguish between them.
- ❖ A very broad subject to talk about (it contains a lot of information in all fields).
- ❖ The subject is related with translation more than linguistic.
- ❖ We faced troubles in the analysis of the practical side.

Recommendations:

- ❖ The student should not rely on AI a lot.
- ❖ We do use AI as a reference of our studies. Students must search and read books.
- ❖ Translation with AI is mostly worsted or it translates literally.
- ❖ The use of AI in positive way, and a beneficial on.

LIST OF REFERENCES

LIST OF REFERENCES

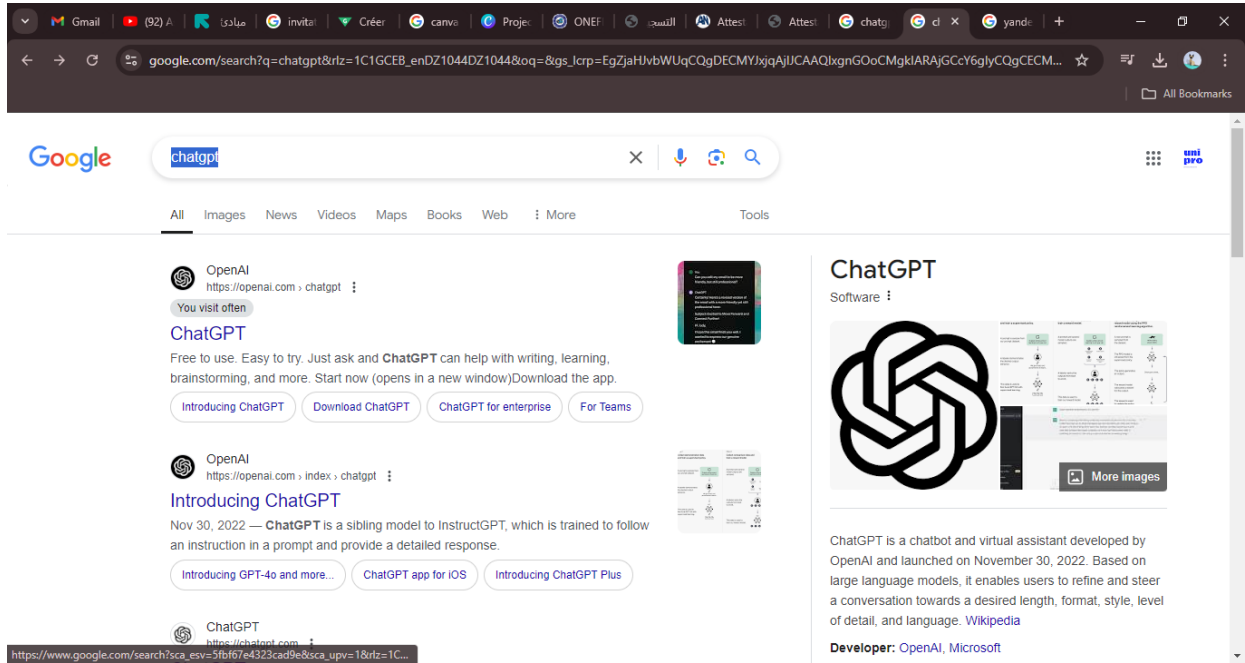
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APPENDICES

APPENDIX 01



Google Translate

Dictionary and online translation - Yandex

Free online **translation** from English and other languages into Russian and back. The **translator** works with words, texts, web pages, and text in photos.

Yandex Translate

... avec transcription, prononciation et exemples d'utilisation ...

Dictionary and online translation

Free online translation from English and other languages ...

Yandex ocr

Translate text from images and photos online with Yandex ...

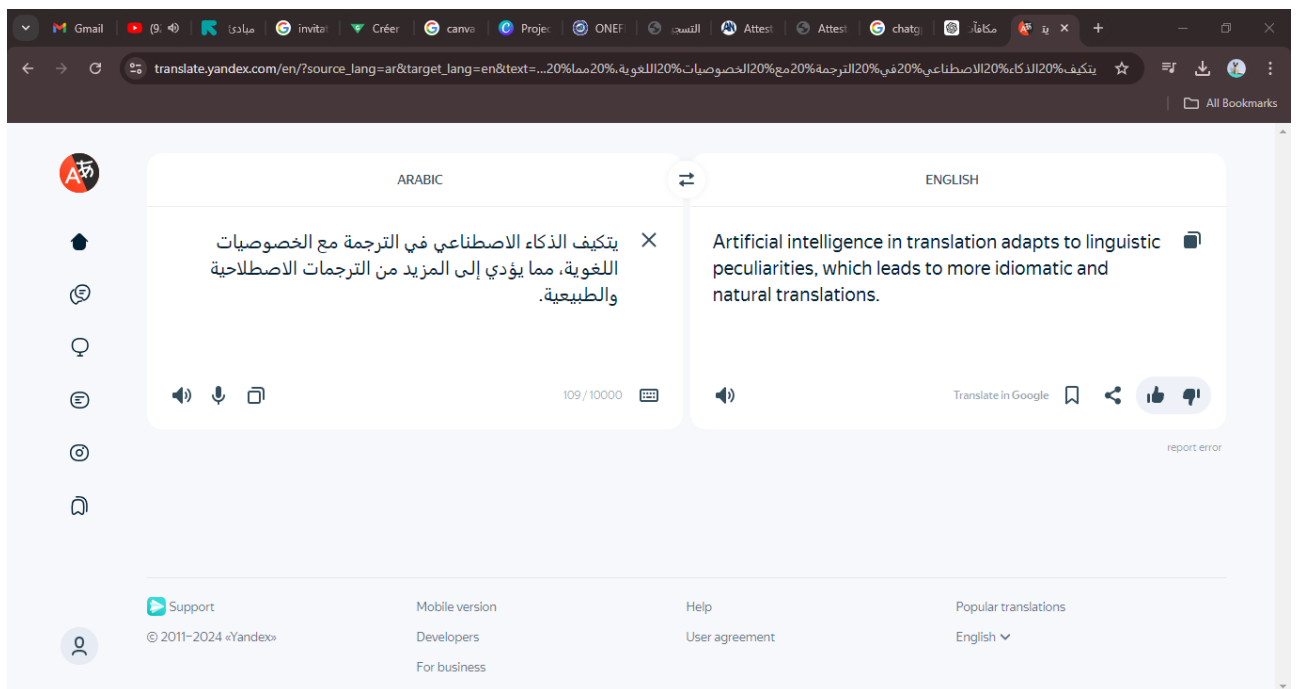
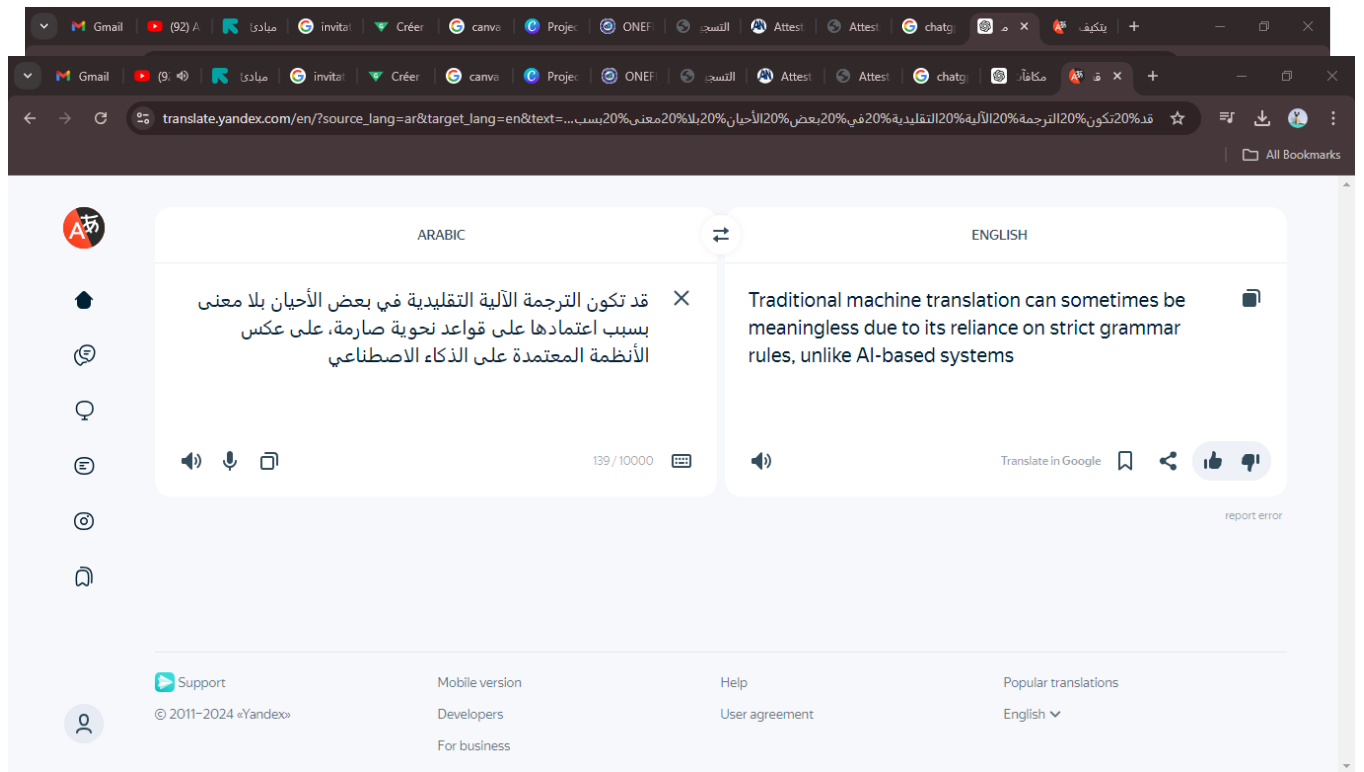
الترجمة من اللغة العربية الى

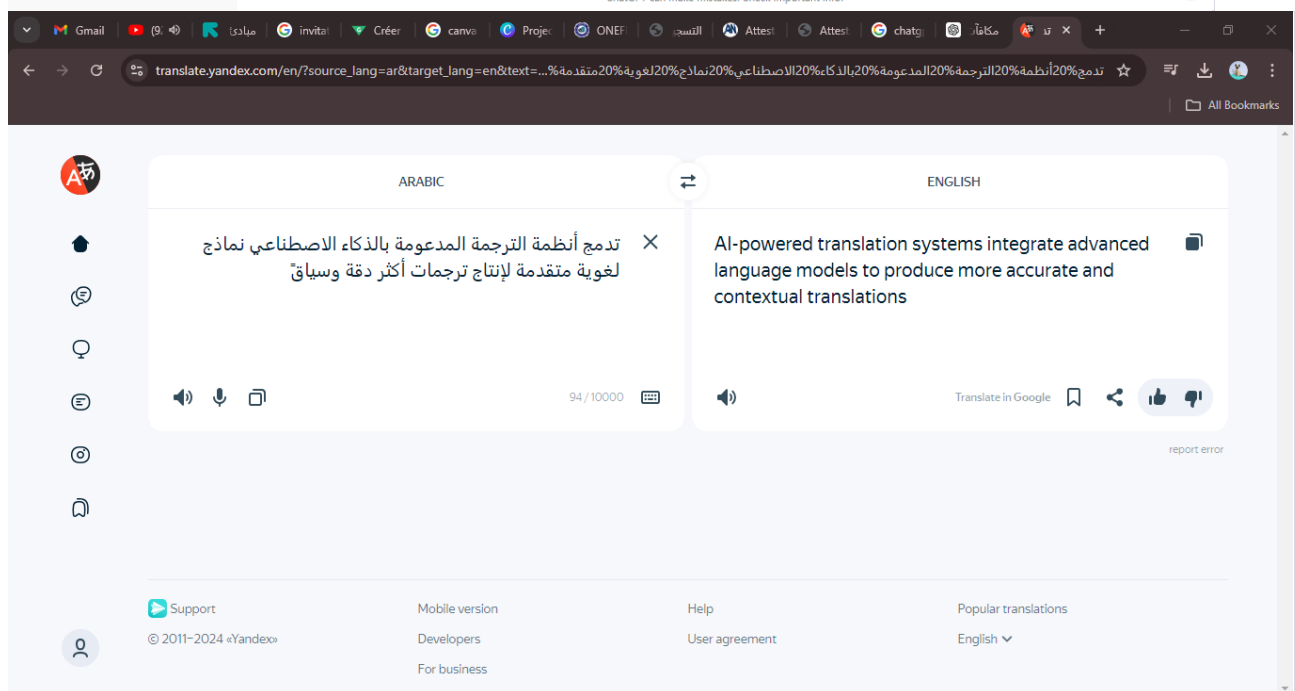
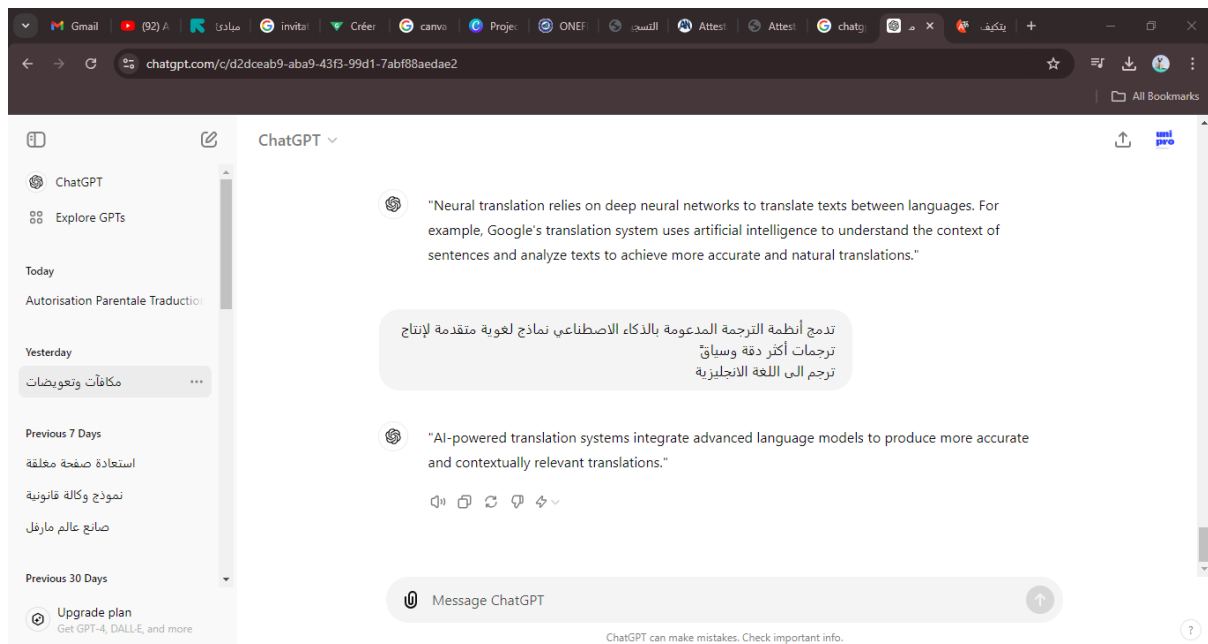
Free online translation from English and other languages ...

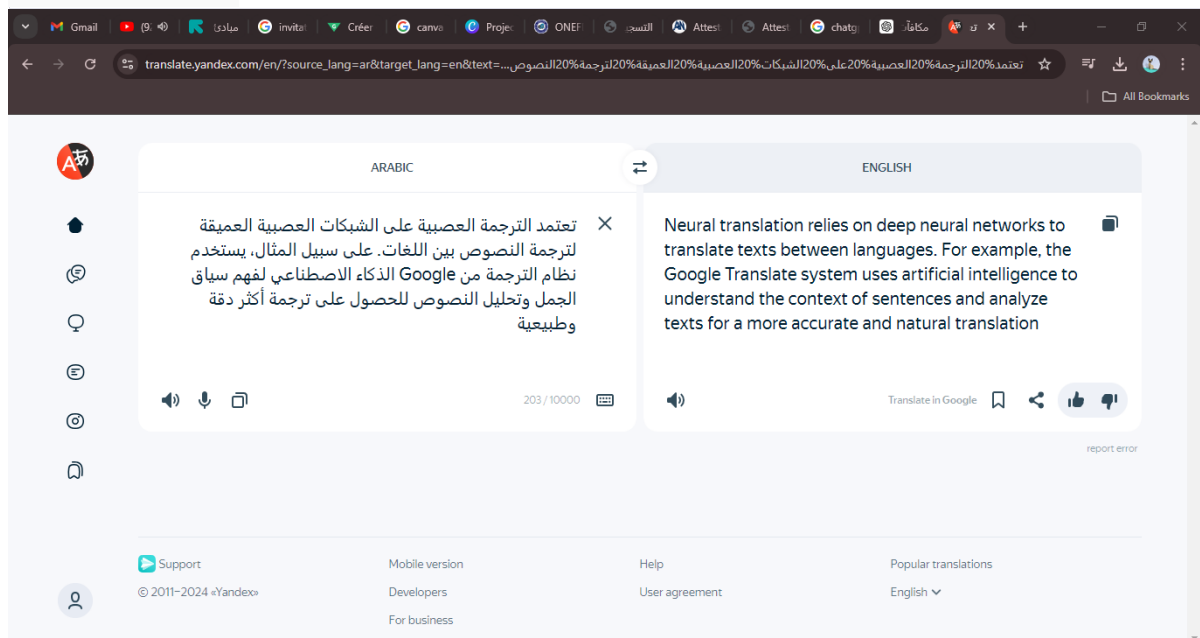
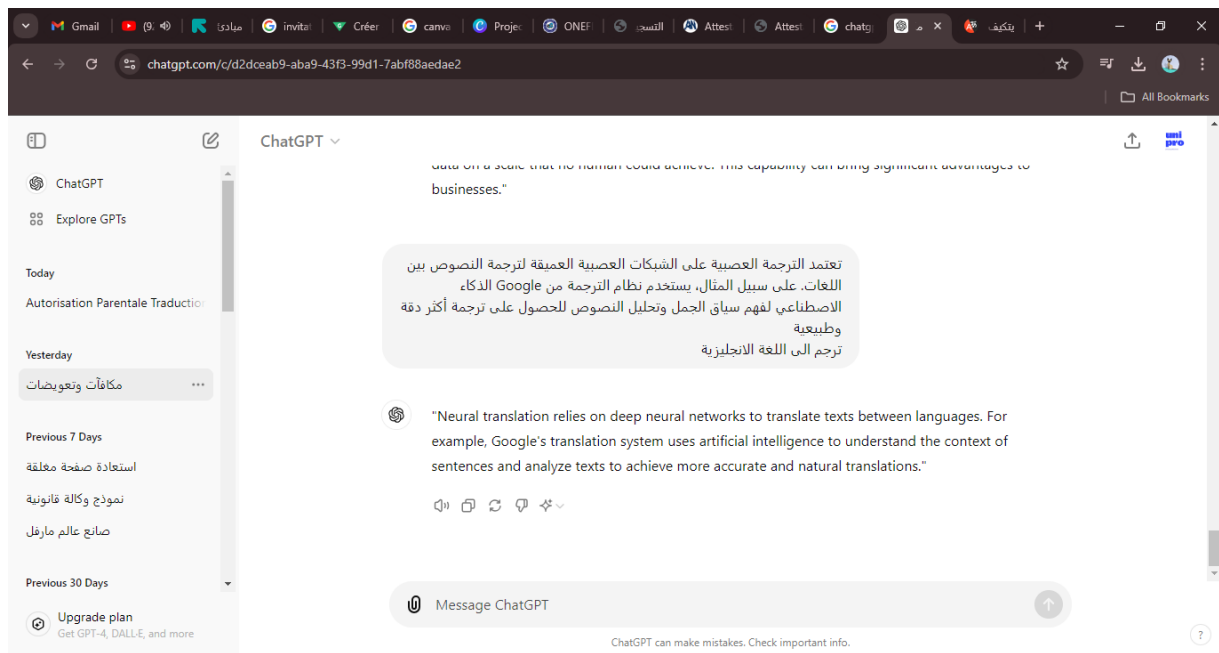
Translator

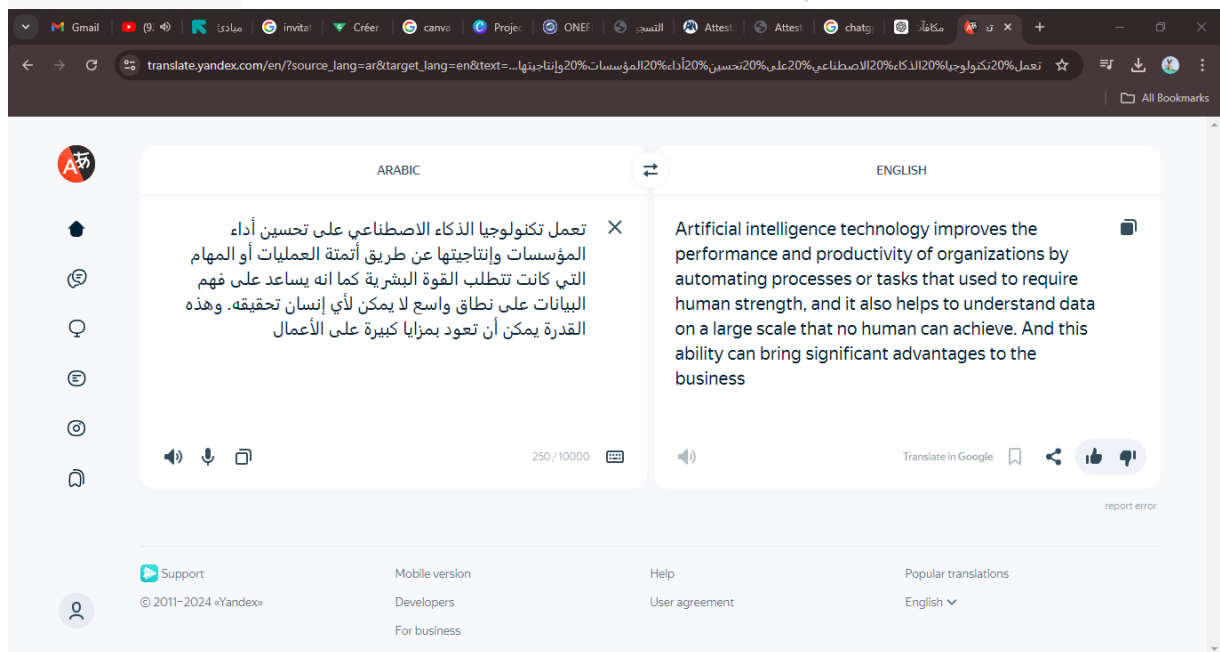
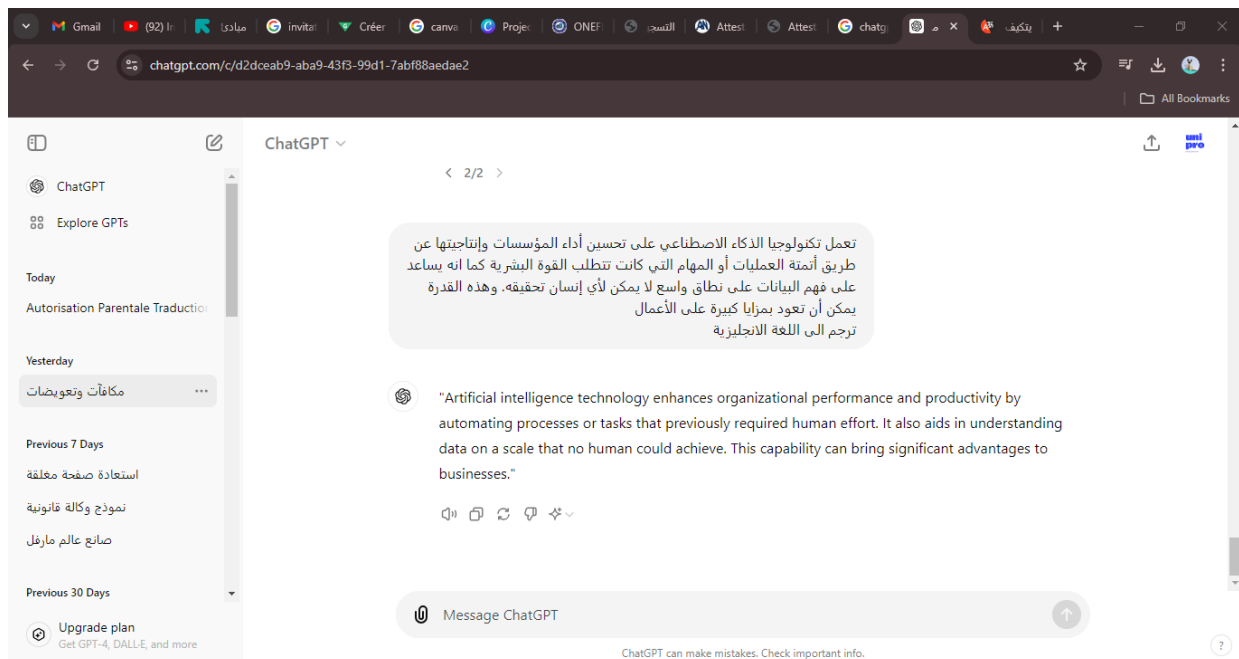
Free online translation from English and other languages ...

Appendix 03









ChatGPT

يُعدّ تقنيّة الذكاء الاصطناعيّ تقنية إستراتيجية حتمية تعمل على الحصول على كفاءة أكبر وفرض جديدة للدخل وتعزيز ولاء العملاء، كما أنها تتحول بسرعة إلى ميزة تنافسية للعديد من المؤسسات

ترجم الى اللغة الانجليزية

"Artificial intelligence technology is an inevitable strategic technology that drives greater efficiency, creates new revenue opportunities, and enhances customer loyalty. Additionally, it is rapidly becoming a competitive advantage for many organizations."

Message ChatGPT

ChatGPT can make mistakes. Check important info.

translate.yandex.com/en/?source_lang=ar&target_lang=en&text=... يُعدّ تقنيّة الذكاء الاصطناعيّ تقنية إستراتيجية حتمية تعمل على الحصول على كفاءة أكبر وفرض جديدة للدخل وتعزيز ولاء العملاء، كما أنها تتحول بسرعة إلى ميزة تنافسية للعديد من المؤسسات

ARABIC

ENGLISH

يُعدّ تقنيّة الذكاء الاصطناعيّ تقنية إستراتيجية حتمية تعمل على الحصول على كفاءة أكبر وفرض جديدة للدخل وتعزيز ولاء العملاء، كما أنها تتحول بسرعة إلى ميزة تنافسية للعديد من المؤسسات

Artificial intelligence technology is an imperative strategic technology that serves to obtain greater efficiency, new income opportunities and enhance customer loyalty. It is also rapidly turning into a competitive advantage for many enterprises

175 / 10000

Translate in Google

report error

Support

© 2011–2024 «Yandex»

Mobile version

Developers

For business

Help

User agreement

Popular translations

English

ChatGPT

Artificial intelligence in translation adapts to linguistic nuances, resulting in more idiomatic and natural translations.

قد تكون الترجمة الآلية التقليدية في بعض الأحيان بلا معنى بسبب اعتمادها على قواعد نحوية صارمة، على عكس الأنظمة المعتمدة على الذكاء الاصطناعي تترجم إلى اللغة الانجليزية

Traditional machine translation can sometimes produce nonsensical results due to its reliance on rigid grammatical rules, unlike AI-based systems.

Message ChatGPT

ChatGPT can make mistakes. Check important info.

تلخيص

تركز هذه الرسالة على المقارنة بين أدوات الذكاء الاصطناعي والترجمة الآلية في مساعدة الممارسات اللغوية، ولا سيما التركيز على طلاب كلية الماجستير في اللغة الإنجليزية في السنة الأولى في جامعة ابن خلدون، تيارت. نلقي نظرة على المساعي لتقييم فعالية تلك التكنولوجيا في تحسين تجربة إتقان اللغة لطلاب الجامعات، لا سيما في عبارات مهام الترجمة والفهم واكتساب اللغة. من خلال تحليل فوائد وتحديات كل ذكاء اصطناعي وترجمة آلية، تهدف الرسالة إلى إدراك الممارسات العظيمة التي يمكن أن تساعد طلاب الجامعات على استخدام هذه التكنولوجيا بنجاح أكبر في دراساتهم اللغوية. تؤكد النهاية على أهمية خلط المعدات التكنولوجية مع الإشراف البشري لاكتساب التأثيرات الأكاديمية من الدرجة الأولى لمتعلمي اللغة.

RÉSUMÉ

Dans cette thèse, nous nous concentrons sur la comparaison entre les outils d'Intelligence Artificielle (IA) et de Traduction Automatique (TA) pour aider les pratiques linguistiques, en particulier sur les étudiants de première année en Master d'anglais à l'Université Ibn Khaldoun, Tiaret. Le regard sur les poursuites pour évaluer l'efficacité de ces technologies dans l'amélioration de l'expérience de maîtrise de la langue des étudiants, en particulier dans les phrases de tâches de traduction, de compréhension et d'acquisition de la langue. En analysant les avantages et les défis de chaque intelligence artificielle et de la traduction automatique, la thèse vise à percevoir d'excellentes pratiques qui pourraient aider les étudiants à utiliser ces technologies avec plus de succès dans leurs études linguistiques. La fin souligne l'importance de mélanger l'équipement technologique avec la supervision humaine pour acquérir les effets académiques de première classe pour les apprenants en langues.

SUMMARY

This dissertation focuses on the comparison among Artificial Intelligence (AI) and Machine Translation (MT) tools in assisting linguistic practices, in particular concentrated on first-yr English Master college students at Ibn Khaldun University, Tiaret. The take a look at pursuits to assess the effectiveness of those technology in improving college students` language mastering experience, in particular in phrases of translation tasks, comprehension, and language acquisition. By analyzing the benefits and challenges of each AI and MT, the dissertation goals to perceive great practices which could assist college students use those technology extra successfully of their linguistic studies. The end emphasizes the significance of mixing technological gear with human oversight to acquire the first-class academic effects for language learners.