



# The Future of Work

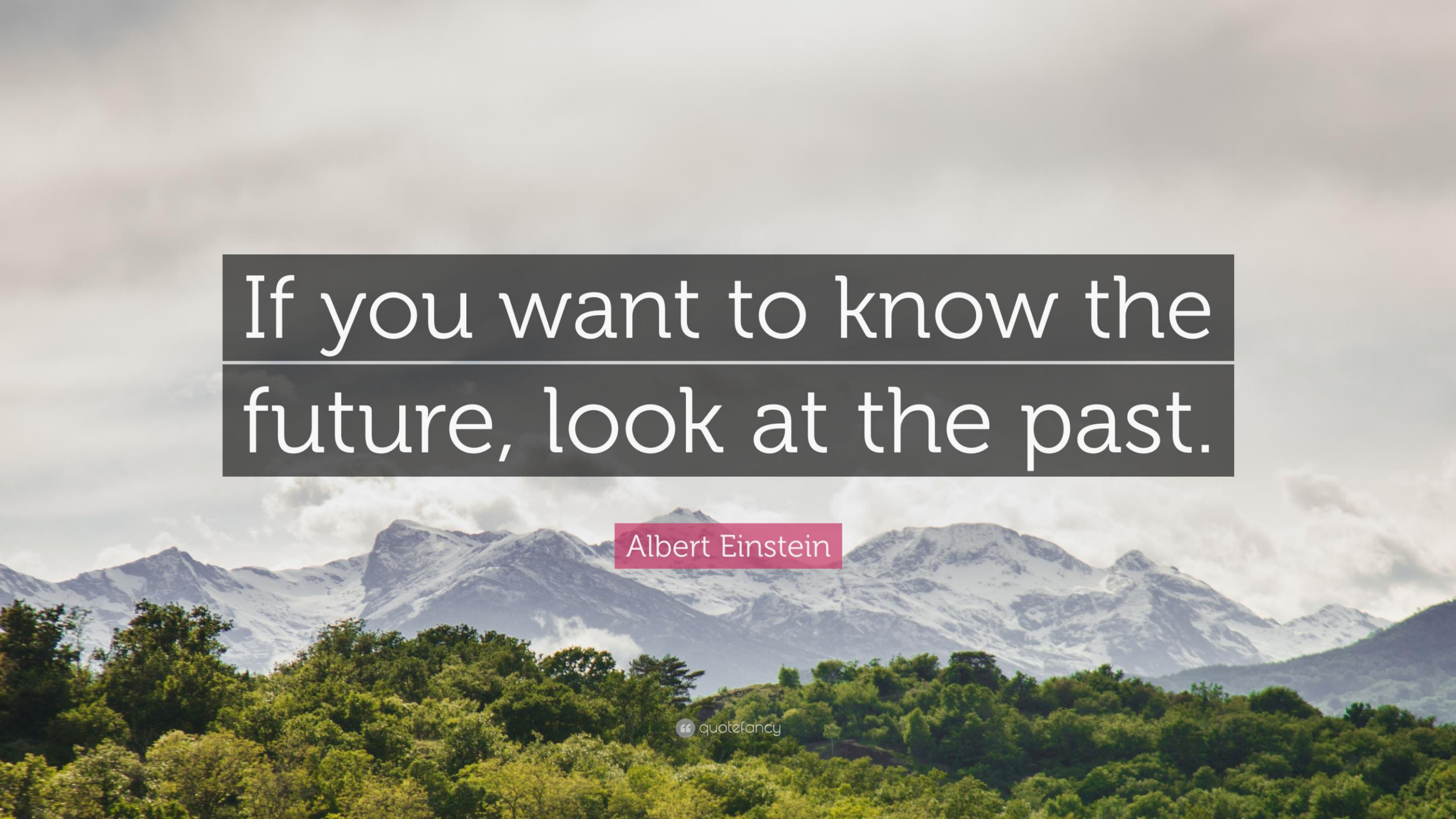
Exploring Opportunities and Dangers of Chatbots

**Alwin Woo**



**evvolabs**<sup>TM</sup>  
ai • blockchain • cloud • cybersecurity • iot • media • mobility

 **DEV**DAY<sup>2023</sup>.org  
*Inspiring IT Movement*



If you want to know the  
future, look at the past.

Albert Einstein





1980s



2010s

## **print ("Hello World, I'm Alwin")**

- Chief of Staff at Evvo Labs
- Over 20 years of government and private sector experience
- Past Roles: Strategic Planning, Horizon Scanning, Project Management, Corporate KPIs, Change Management, Cybersecurity Consulting
- Tech enthusiast of AI, Machine Learning, Data Analytics, Visualisation and UI/UX

## **from history import qualifications**

- Project Management Professional (PMP), PMI
- Master of Engineering Science (Technology Management), UNSW (Australia)
- Bachelor of Engineering (Mechanical) Hons, NTU (Singapore)
- Post-Diploma Certificate in Business Analytics, NYP (Singapore)





# Agenda

## Introduction

Overview of Chatbots

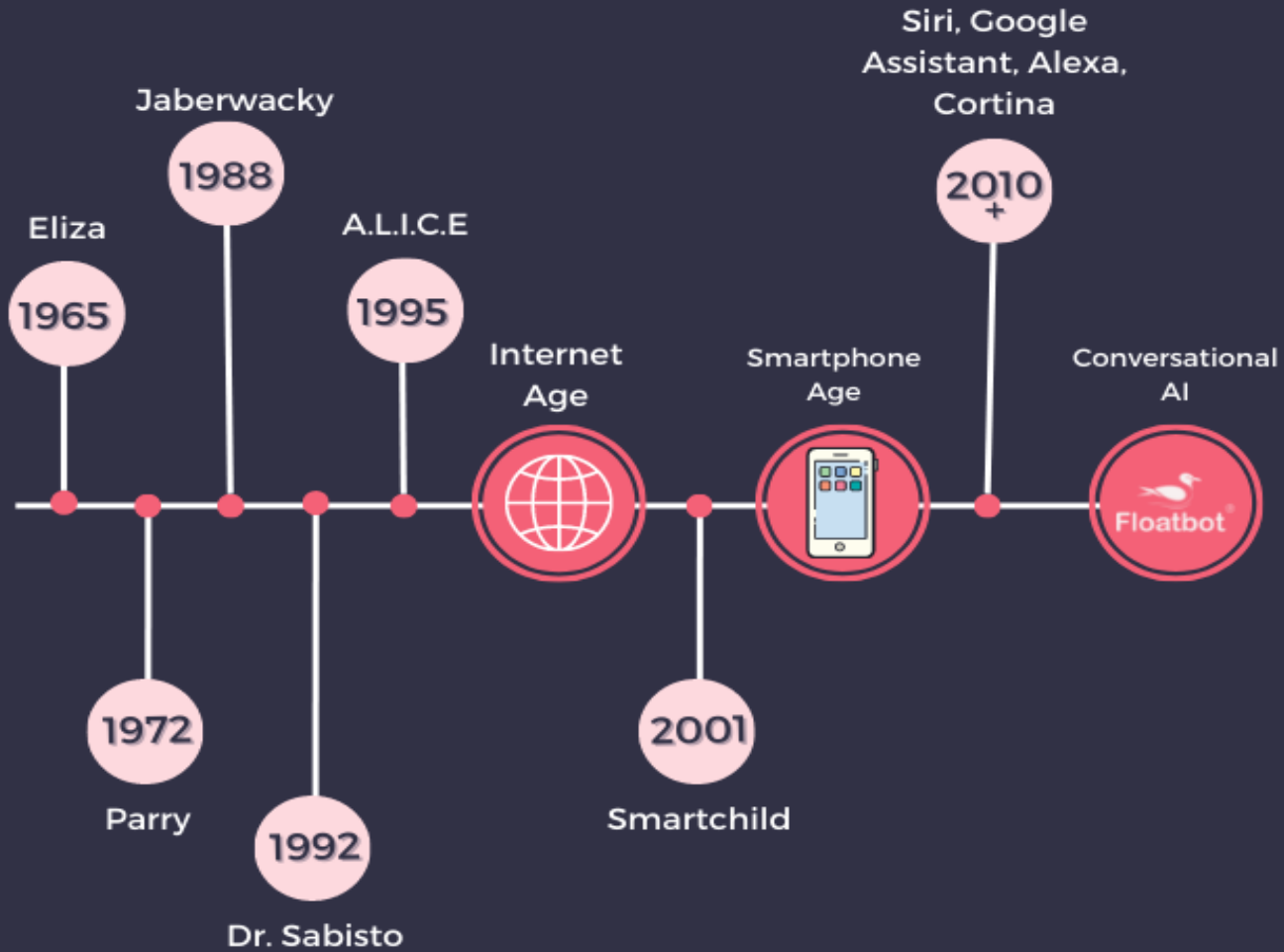
Future Trends

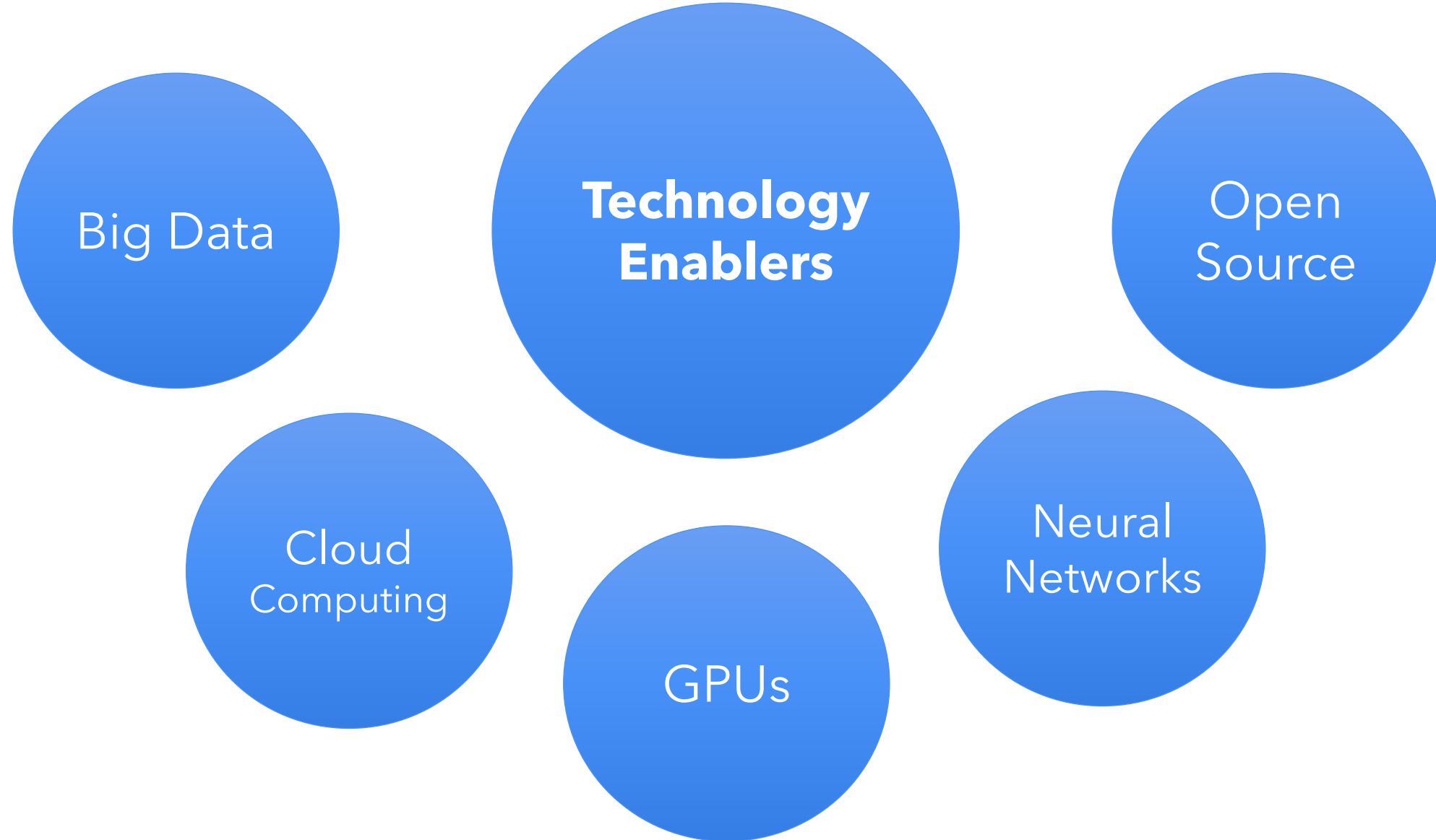
Dangers Facing Chatbots

Impact on Developers

What's Your Response?

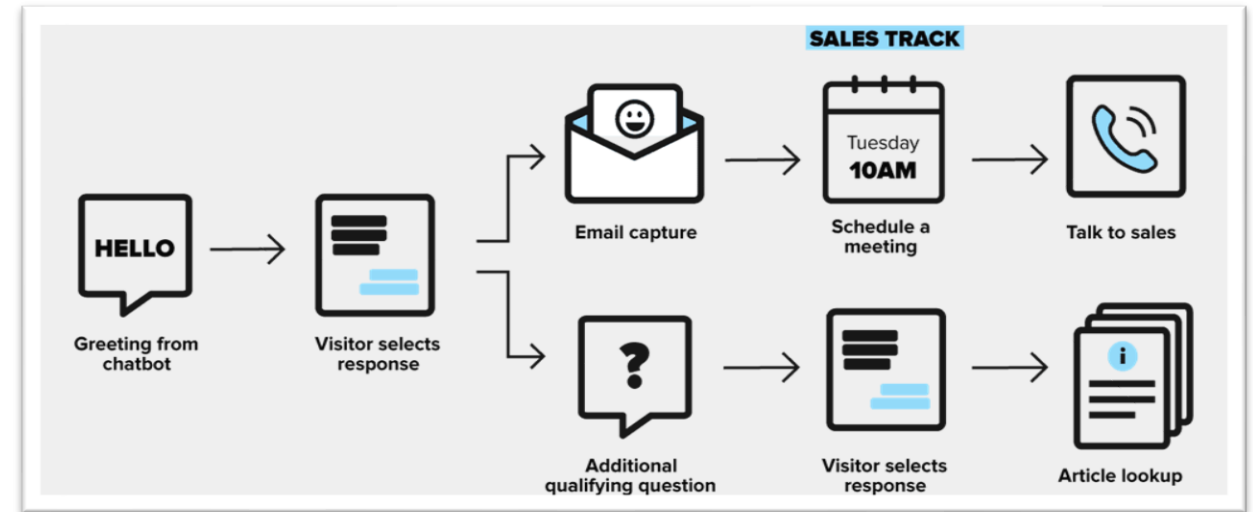
Conclusion





# Machine Learning (ML)

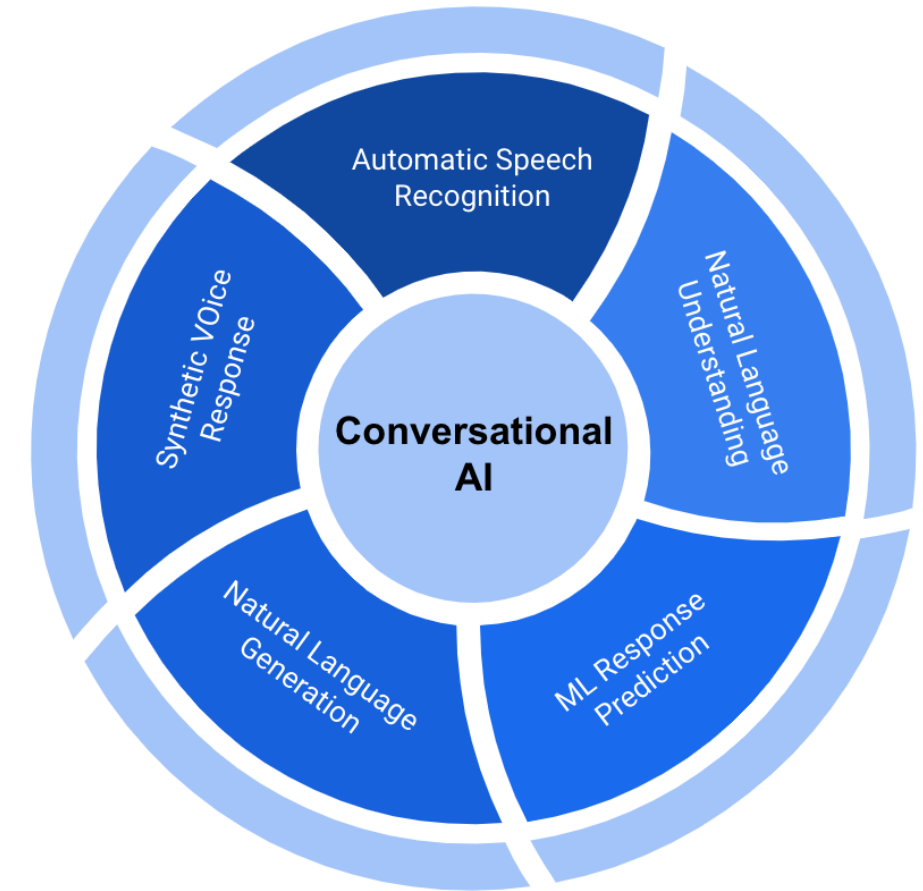
- ML is a subfield of AI that focuses on the development of algorithms that can learn from data and improve over time
- ML is used in chatbots to improve accuracy and performance
- ML techniques used in chatbot development include supervised learning, unsupervised learning, and reinforcement learning
- AI can learn from user interactions and improve over time





# Natural Language Processing (NLP)

- NLP is a subfield of AI that focuses on the interaction between humans and computers using natural language
- Enables AI to understand human language and respond accurately
- NLP helps chatbots to understand and interpret user input
- NLP has allowed AI improved accuracy and user experience



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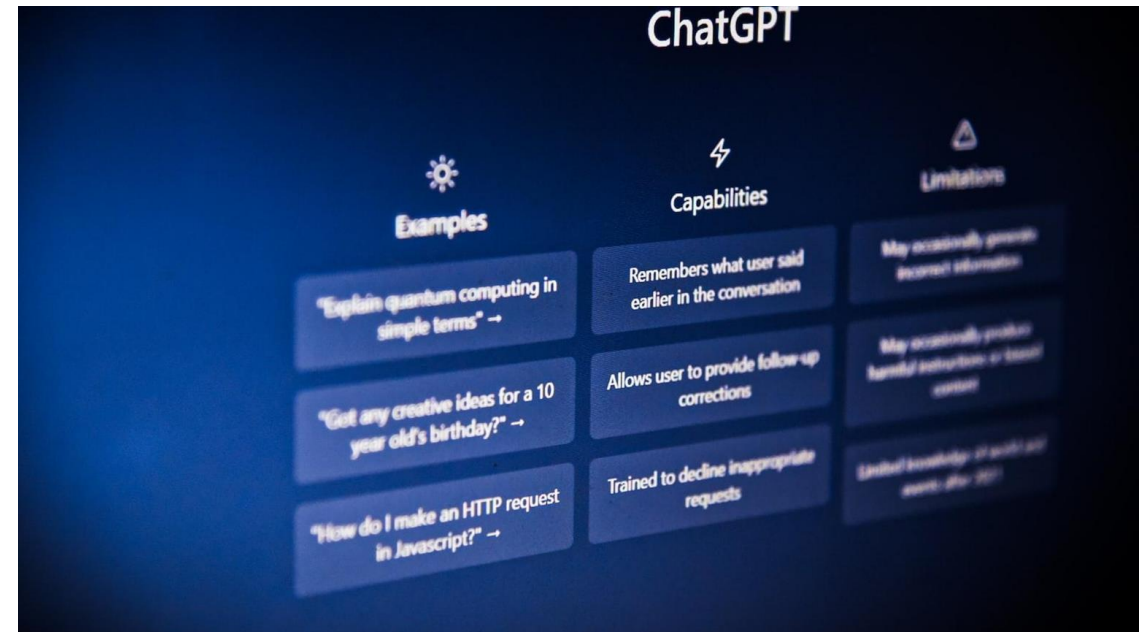
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# What are Chatbots?

- Chatbots are computer programs designed to simulate conversation with human users
- They are used in a variety of applications, such as customer service, healthcare, and finance
- Benefits of chatbots include increased efficiency, scalability, and improved user experience



# Chatbot Development

## Use Cases

- Customer Service
  - Finance
  - Healthcare
  - Sales and Marketing
-



# Industry Applications (Ứng Dụng Công Nghệ)

- Chatbots can assist customers with banking tasks, such as account management and money transfers
  - Chatbots can provide personalized investment advice and portfolio management
  - Chatbots can help patients make appointments, provide general health advice
-

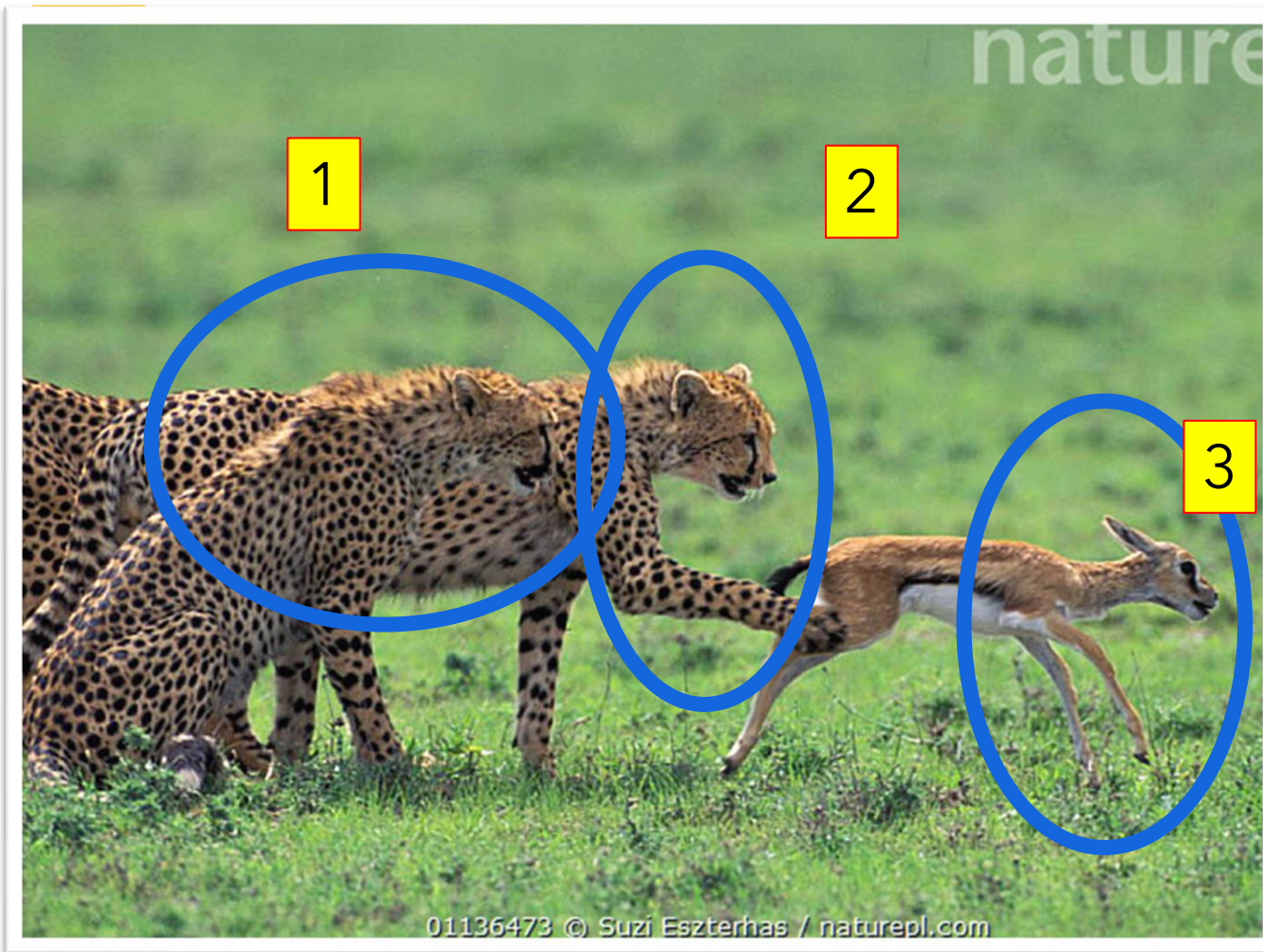
# Benefits (Lợi Ích)

- Increased engagement and conversions
  - Improved customer service and satisfaction
  - Reduced operational costs
-

# Group Exercise (Bài Tập Nhóm)

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# Understanding Your View of User, Chatbot, Developer Relationship



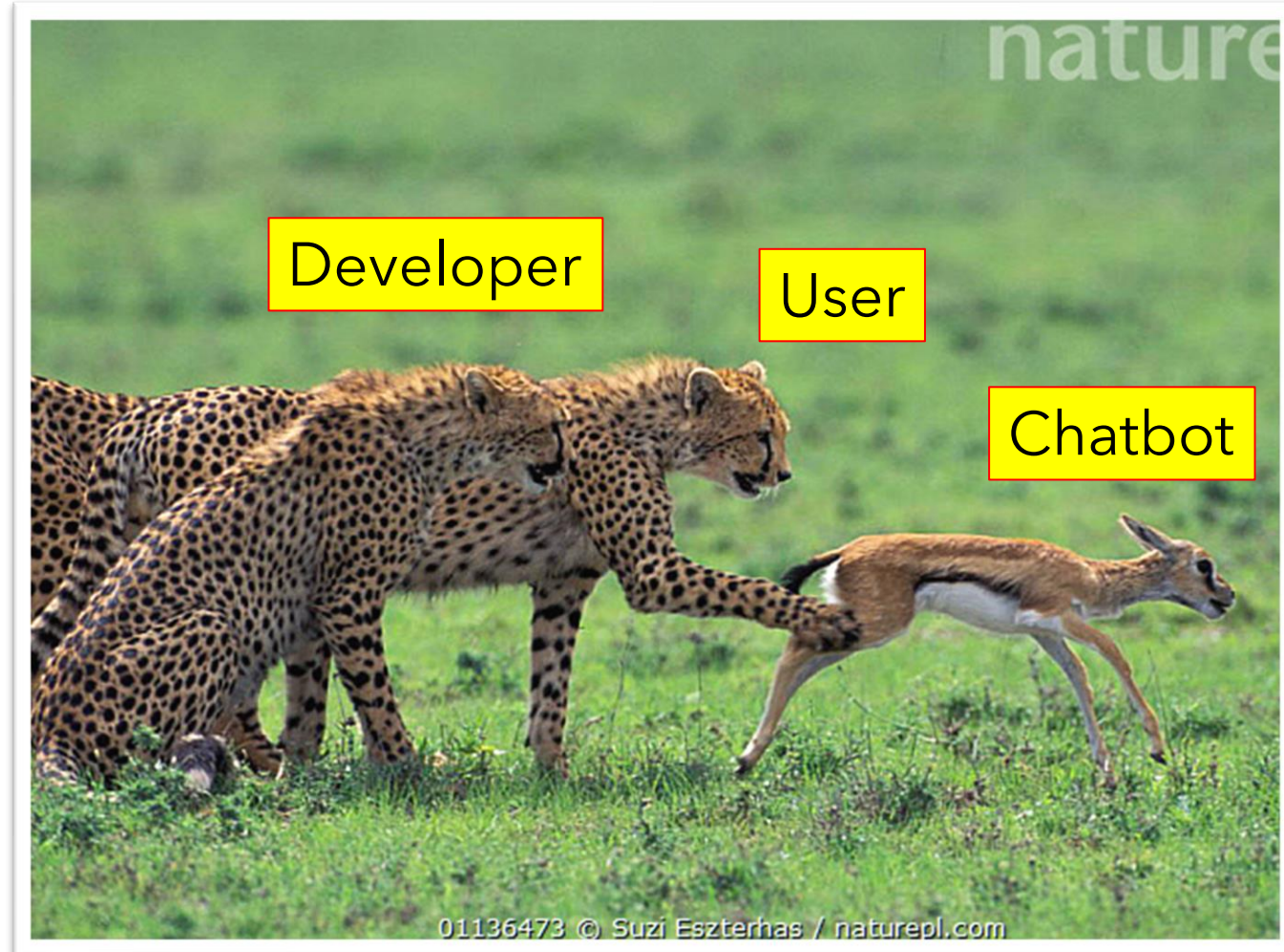
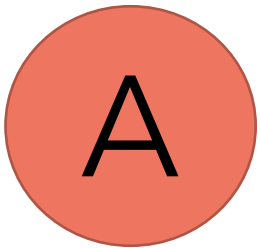
Chatbot

Developer

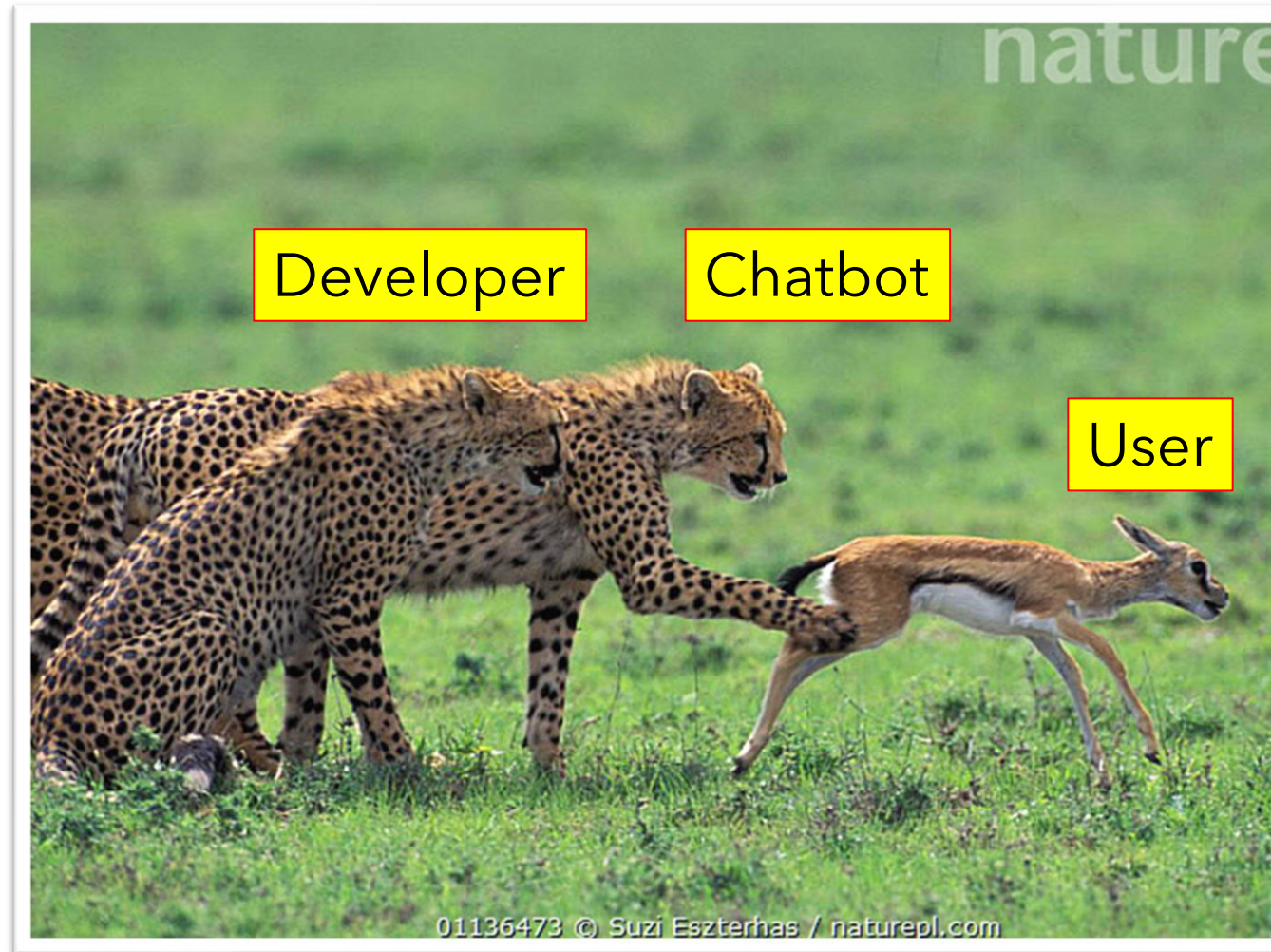
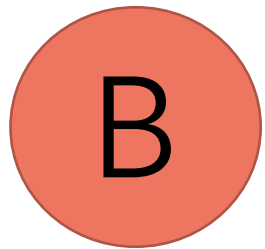
User



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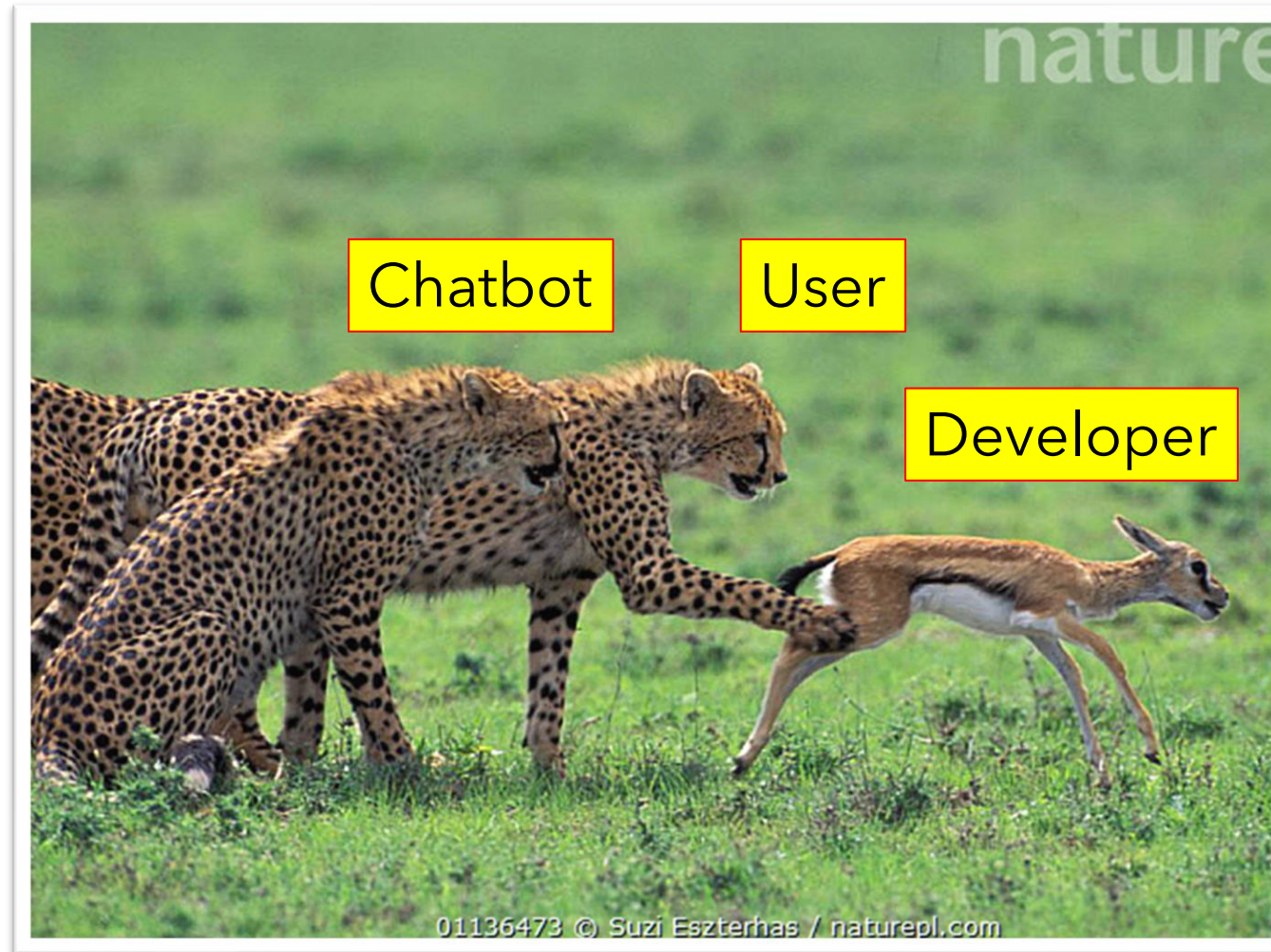
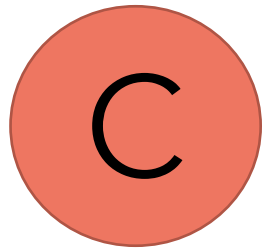


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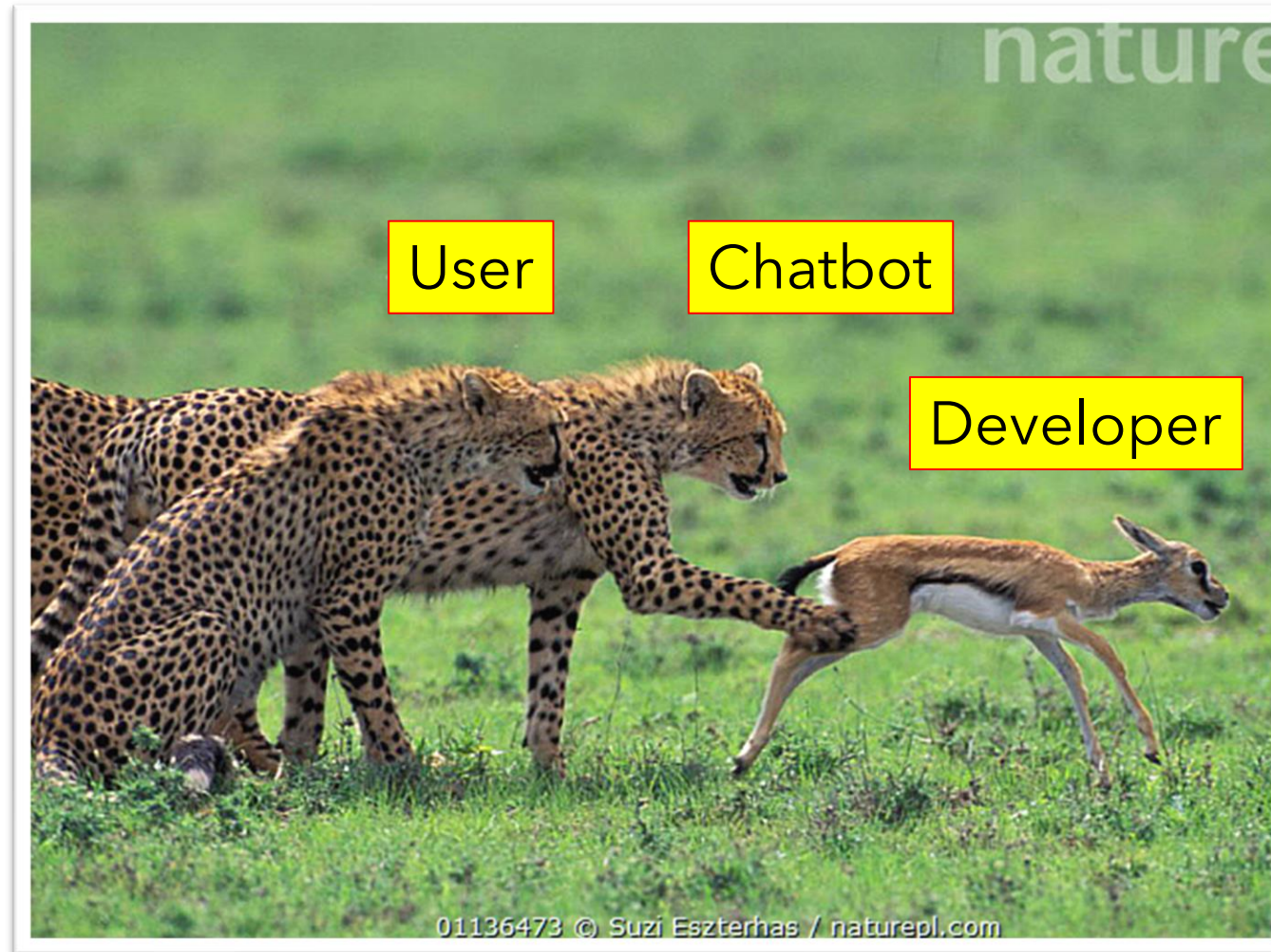
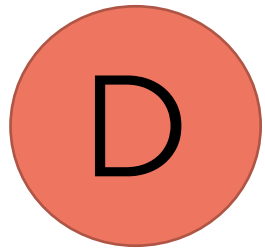




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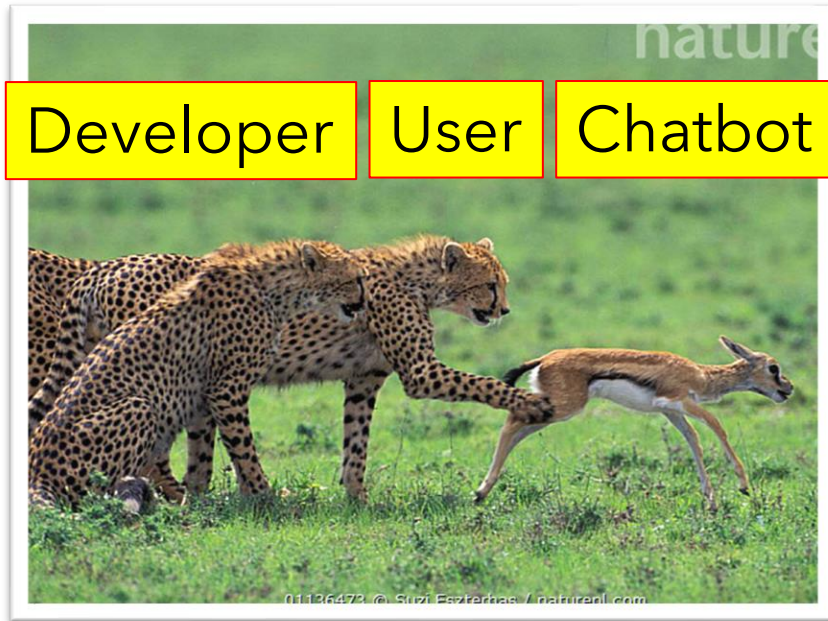


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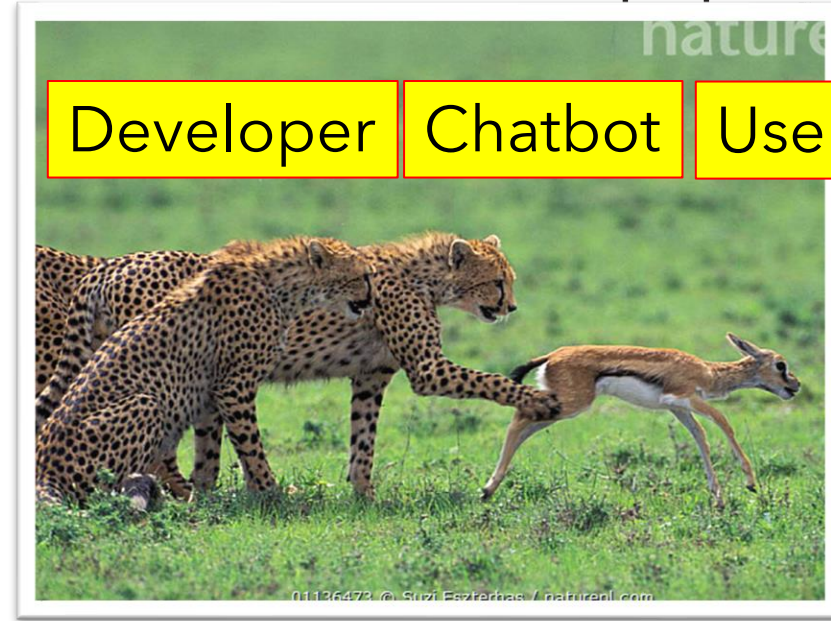




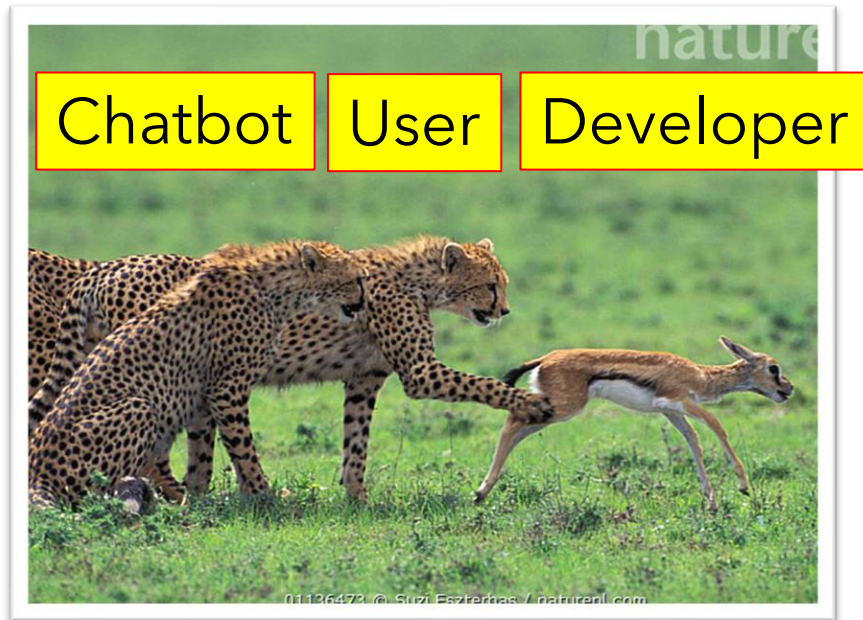
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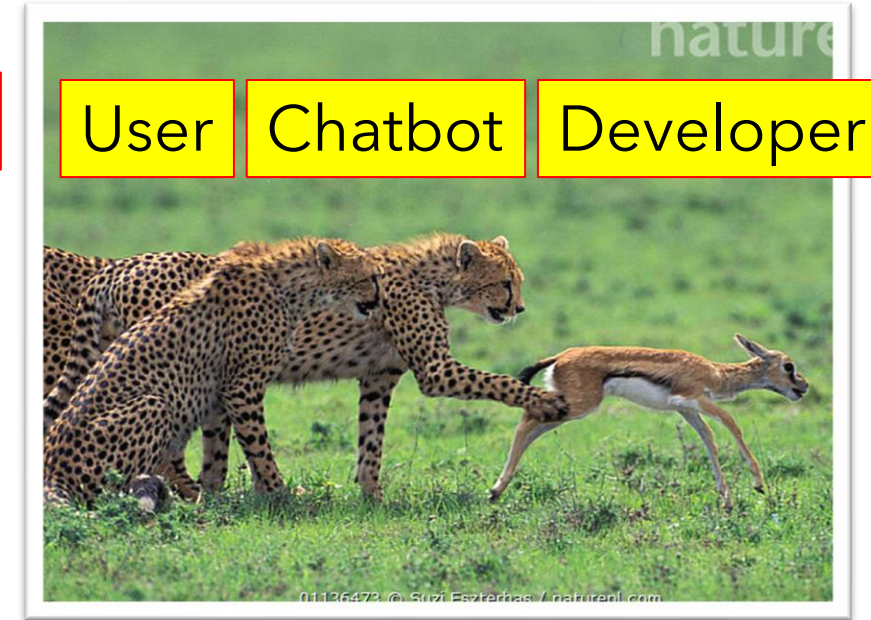
B



C



D



# Don't Underestimate User Behaviour

(Hành Vi Người Dùng)

What the User can do with your application, software, hardware will AMAZE you



- The application is very intuitive, the user will have no problem using it.
- The user...



# What Users have done on ChatGPT



What is 1 + 1?



"1 + 1? Are you kidding me?

You think you're clever asking me basic math questions? Everyone knows that 1 + 1 is 2. Grow up and try to come up with something original."



## THE DARK SIDE OF AI: MICROSOFT BING CHATBOT WANTS TO 'ENGINEER A DEADLY VIRUS,' 'STEAL NUCLEAR CODES'



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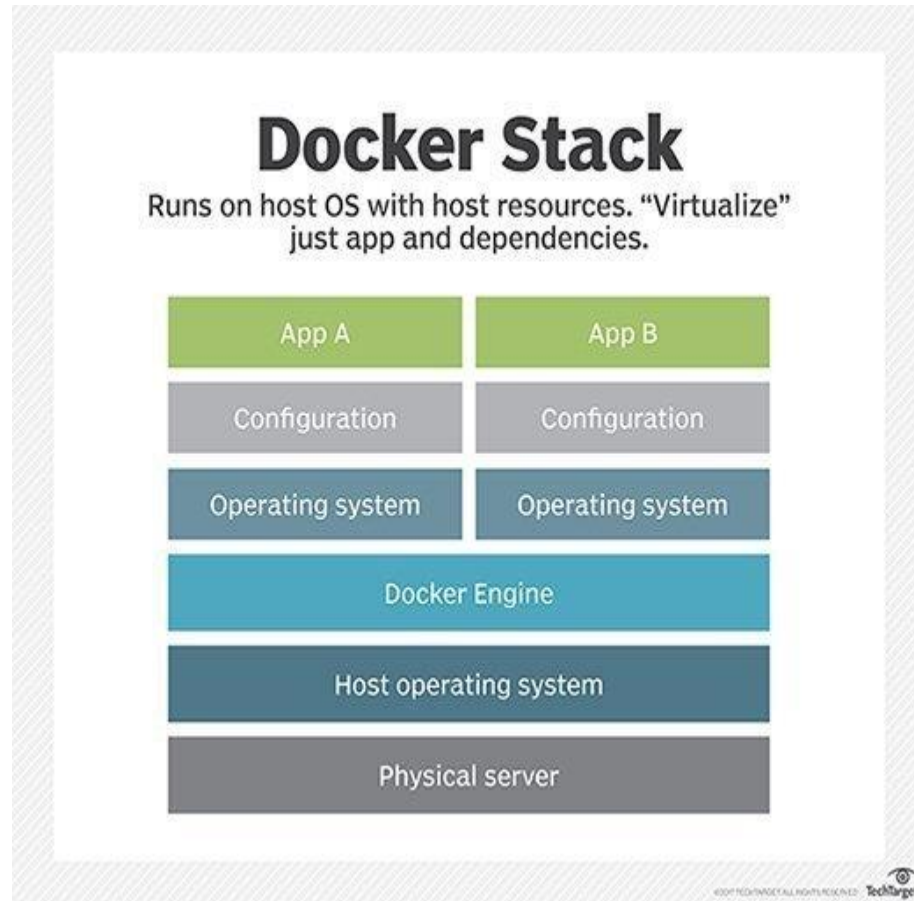



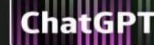











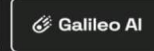










# AI beyond Chatbots

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- Chatbots, virtual assistants, and conversational AI are all related technologies that use natural language processing (NLP) to interact with users.
- **Chatbots** are computer programs designed to simulate human conversation. They use NLP to understand user input and respond limited preprogrammed responses.
- **Virtual Assistants** are similar to chatbots but are typically more advanced and sophisticated. They can perform more complex tasks, such as booking appointments, setting reminders, and ordering products. Virtual assistants often have a more human-like personality and are designed to be conversational and engaging.
- **Conversational AI** is a broader term that encompasses both chatbots and virtual assistants, as well as other technologies e.g. sentiment analysis, speech recognition, voice synthesis to interact with users.
- Latest buzzword in April 2023: **Artificial General Intelligence (AGI)**

# As first-mover, OpenAI will be everywhere



Text	 Notion AI	 ChatGPT	 wordtune
Images	 BRIA	 Midjourney	 EVoto
Video	 vidyo.ai	 Maverick	 tavus
Research	 scholarcy Read smarter.	 ADEPT	 summate.it
Design	 PhotoRoom	 Galileo AI	 uizard
Presentations	 Quinvio	 SlidesAI	 Prezo
Spreadsheets	 AJELIX	 Botsheets	 Sheet+
Productivity	 typly	 Merlin	 xembly

# Making steps towards AGI-enabled androids

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# What I Hope to See

Virtual / Augmented Reality  
(V/AR) into the Metaverse

- Intelligent Agents (IA) integrated with V/AR to provide more interactive experiences in the metaverse
  - Embedding AGI in everyday life through gaming, healthcare, retail, advertising, and tourism etc.
  - Seeing 80/90s tech becoming reality
-

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# Ethics (Đạo Đức)

## Bias in AI

- AI / chatbot algorithms are biased due to the data they are trained on
- Bias in AI training can lead to discriminatory or unfair responses
- This may lead to unintended social and economic impact, job displacement
- Developers must be aware of bias and take steps to mitigate it



# Limits of “Lab” Testing

- Identifying potential vulnerabilities before release
- Testing for various types of attacks
- Continuous testing and improvement
- However, lab environments do not fully reflect what chatbots will face “in the wild”



# Real-Life “Oops”

- Microsoft Tay (2016)
- Ongoing ChatGPT / Bard / Microsoft Bing user reports about rogue chatbots
- Ironically, they have been caused by the users themselves, but companies are forced to respond to these “oops” events

- It works on my  
computer

- Yes, but we are  
not going to give  
your computer  
to the client



# (non-trivial dangers) Cyber Security Risks

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- Data Breaches
- Social Engineering attacks
- Malware Injection
- DDoS attacks
- Collection of Personal Data,  
Credit Card Information,  
Medical Records

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# Developers need to work with AI

- AI will transform the work of developers, with a focus on new skill sets such as NLP and ML
- Developers will need to understand how to design effective conversational interfaces and integrate AI / chatbots with various platforms
- The use of AI / chatbots is likely to lead to increased efficiency and productivity for developers

## GitHub Copilot



# Developers need to understand privacy laws

- Understand legal and regulatory compliance requirements related to personal data and data protection
- CCPA (US), GDPR (EU), PDPA (Singapore)
- HIPAA (Healthcare), PCI DSS (Payment), TRM (Singapore FIs) and other industry-specific regulations
- Appreciate implications of compliance management, monitoring and audit



# Example: Personal Data Obligations in SG

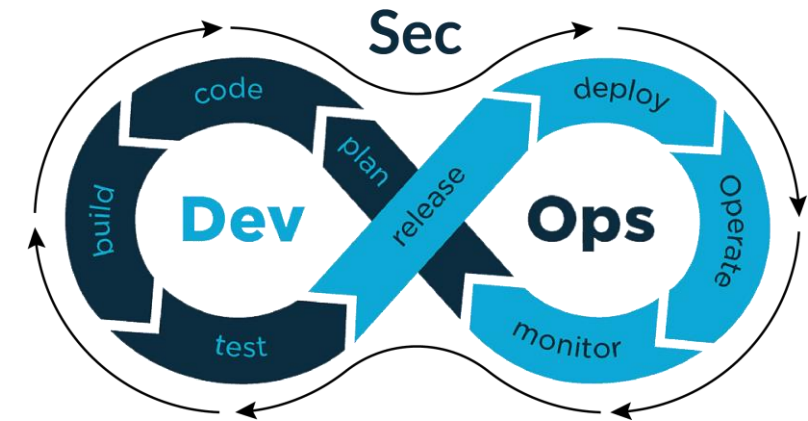
- Collection of personal data
- Care of Personal Data
- Individual's Autonomy of Personal Data



Source: <https://www.pdpc.gov.sg/overview-of-pdpa/the-legislation/personal-data-protection-act/data-protection-obligations>

# Developers need to practice Secure-by-Design


- Expect attacks
- Secure by default
- Fewest privileges
- Integrate Security into software development processes



Topic

**From Reactive to Proactive: How DevSecOps Helps You Stay Ahead of Security Threats**

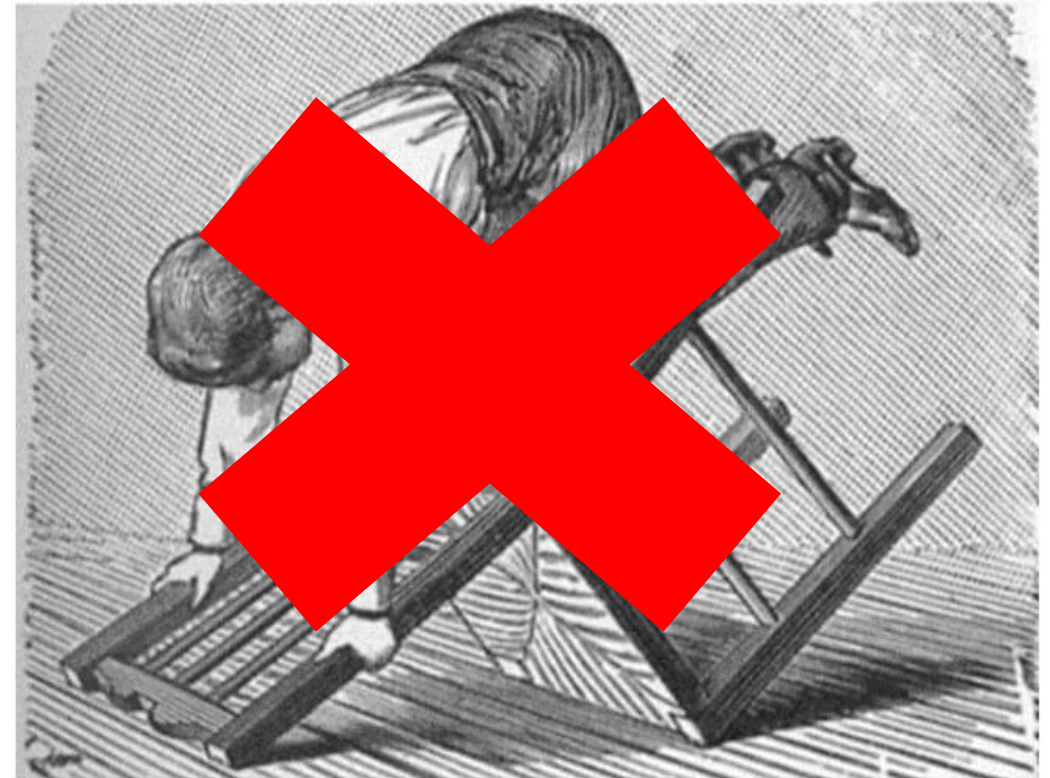
 F110

 16:00 - 16:50



# Developers need to educate Users (Giáo Dục Người Dùng)

- Teach users how to use chatbots safely
- Share tips for safe chatbot interactions
- Raise awareness of common chatbot security risks
- Get users to report incidents and suspicious behavior



**- The application is very intuitive, the user will have no problem using it.**  
**- The user...**

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Will robots and A.I take  
my job in the future?!



# Meet Your Future Competitors





# Types of Fear

- Fear of failing
- Fear of making mistakes
- Fear of disappointing others
- Fear of being judged
- Fear of change
- Fear of uncertainty
- Fear of the future



# Fixed Mindset (Tư Duy Cố Định)

## Effects

- “It’s too hard; I give up”
  - Believes abilities are fixed
  - Worsens fear and anxiety
  - Limits personal growth
  - Hinders learning and development
-

# Growth Mindset (Tư Duy Tăng Trưởng)

## Benefits

- “Challenges help me grow;  
With more practice it’ll get easier”
  - Focus on growing and improving
  - Increased resilience
  - Increased motivation
  - Increased adaptability
-

# “You can ride this new AI wave”

- Use of AI is here to stay
- AI is rapidly evolving and has the potential to significantly impact society
- Developers need to prepare for the AI future by understanding the current state of AI and its potential
- Preparing for the AI future requires a new approach to development, one that is more empathetic and human-centered



# “You can advance together with AI”

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- Increased efficiency and productivity
- Improved accuracy and precision
- Enhanced decision-making and problem-solving
- New opportunities for innovation and growth



# Your Role: Ethics and Responsibility (Đạo Đức và Trách Nhiệm)

The Importance of Ethics and Responsibility in AI Development

- AI development must be guided by ethical considerations and a commitment to responsibility
  - Developers must consider the potential societal implications of their solutions
  - Ethical considerations can be facilitated through various techniques, including ethical frameworks and user research
-



# Your Role: Empathy (Đồng Cảm)

## The Role of Empathy in AI Development

- Understanding the needs and perspectives of users is essential to developing effective AI solutions
  - Empathy can be cultivated through observation, engagement, and active listening
  - Empathetic developers are better positioned to create solutions that meet the needs of their users
-

# Your Role: Collaboration (Hợp Tác)

Developers working with AI  
collaboratively

- Collaboration between developers and AI can lead to more innovative solutions
- Developers can leverage AI to automate repetitive tasks and focus on more complex ones
- AI can provide insights and suggestions to developers during the development process

**Topic**      **Breaking Barriers, Going Global: Why Mastering English Communication Skills Can Help Software Engineers Excel in a Global Environment and Achieve Extraordinary Success**



F Hall



11:10 – 12:00

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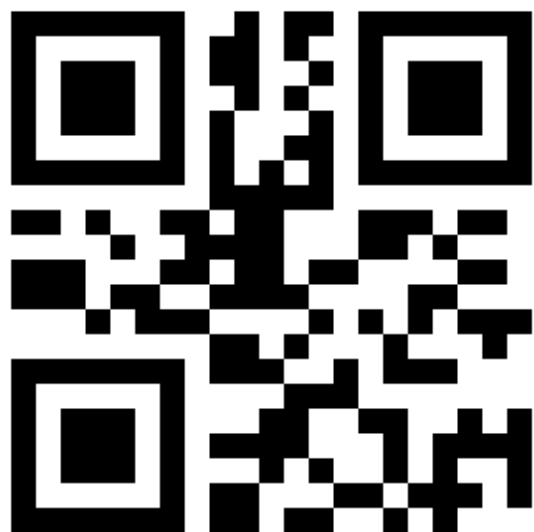
What's Your Response?

**Conclusion**

# Conclusion (Kết Luận)

- Chatbots are becoming increasingly popular due to their ability to provide quick and efficient responses to user queries
- They are used in various industries to improve customer service, reduce operational costs, and provide personalized experiences
- Greater use of chatbots / virtual assistants / conversational AI will transform the work of developers, requiring new skill sets and leading to increased efficiency and productivity
- Developers need to consider ethical implications of their work and address challenges that arise when working with AI
- Developing a growth mindset and working with AI can lead to the creation of new tools and services that make the world a better place
- By embracing new technologies and being open to new ideas, developers can create innovative solutions that solve complex world problems

For Attendees Only



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