Desafios no Desenvolvimento de Software e garantia de Qualidade

Volnei Klehm

Topics

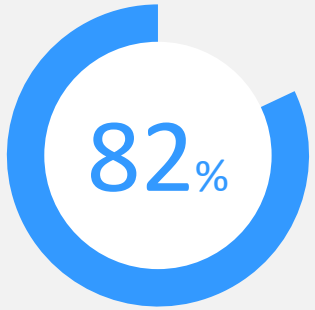
- Artificial Intelligence;
- Automation;

Considerations

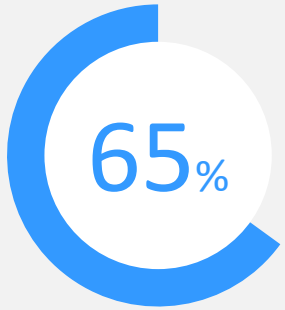
Artificial Inteligence

Privacy and data protection present a challenge from both a consumer and company perspective

Consumers express concern over privacy surrounding AI



% of consumers who are concerned about how the use of AI could compromise their online privacy



% of consumers who have already lost trust in organizations over their AI practices

You just don't know how your information is going to be used. *We think we're dealing with a computer but who knows?* ***There might be a person behind it.***

- Anonymous User

(Source: Customer Data Platform Resource, 2022 / Cisco 2022 Consumer Privacy Survey)

Companies face challenges in data protection & privacy

41%

of organizations that reported they have previously had a known AI privacy breach or security incident

49%

of organizations that expressed concern about malicious hackers

60%

Among organizations who have faced an AI security or privacy incident, 60% reported internal data compromise

(Source: Gartner, 2022

Consideration

Legal Status EU

Most of the European countries already have strict personal data protection laws in place

Framework of personal data protection law in EU

General Data Protection Regulation

Primary law by EU for core principles, rights, obligations of personal data processing

Data Protection Act (UK)

General law by country for overall regulation of the processing of public and private personal data

Violation case of 'Clearview AI' in EU

Regarding facial recognition technology, whether or not it is illegal is determined according to country-specific regulations

Consideration

Legal Status Southeast Asia

While relatively new in Southeast Asia, more countries are legislating their own GDPR-equivalent laws

Framework of personal data protection law in SE Asia

Singapore

Personal Data Protection Act (PDPA) (2012)

Provides a baseline standard of protection for personal data in Singapore

Vietnam

Decree No. 13/2023/ND on the Protection of Personal Data (2023)

Vietnam's long-awaited, first-ever comprehensive data privacy law; took effect on July 1, 2023

Thailand

Personal Data Protection Act (PDPA) (2020)

Thailand's first law created to govern data protection for data controllers & processors, including both public and private entities

Recent issues surrounding privacy laws in SE Asia

Singapore:
PDPA violation cases

Vietnam: New law
just taking effect (July 2023)

Thailand: New law causing
controversy among public

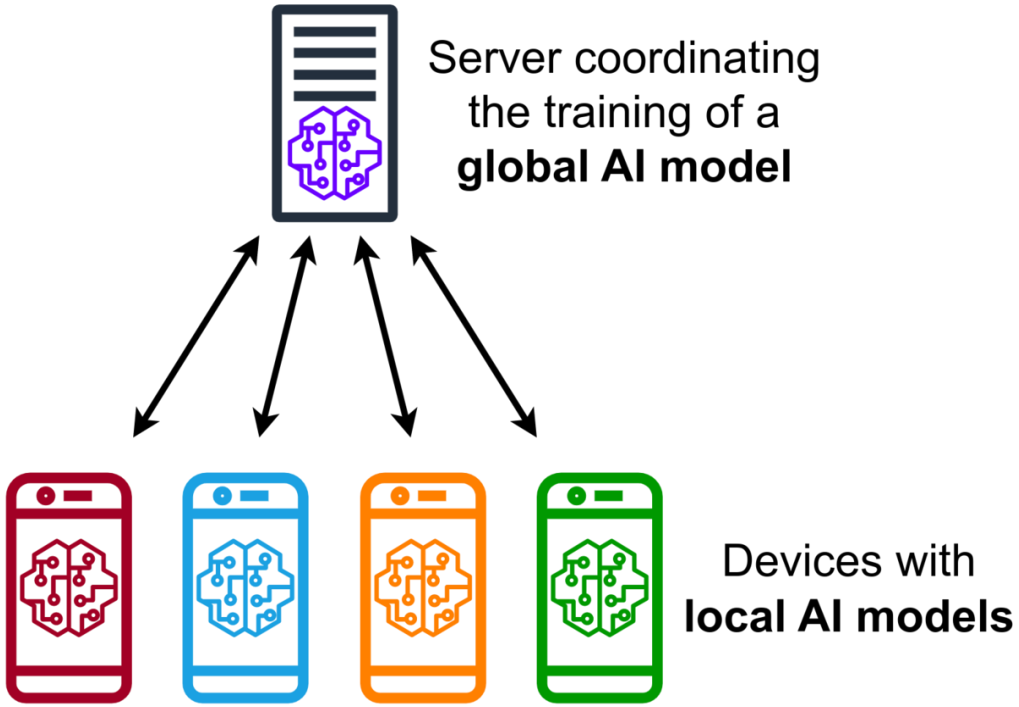
Legal Main Concerns About IA

- Explainability
- Impartiality
- Privacy

Artificial Inteligence

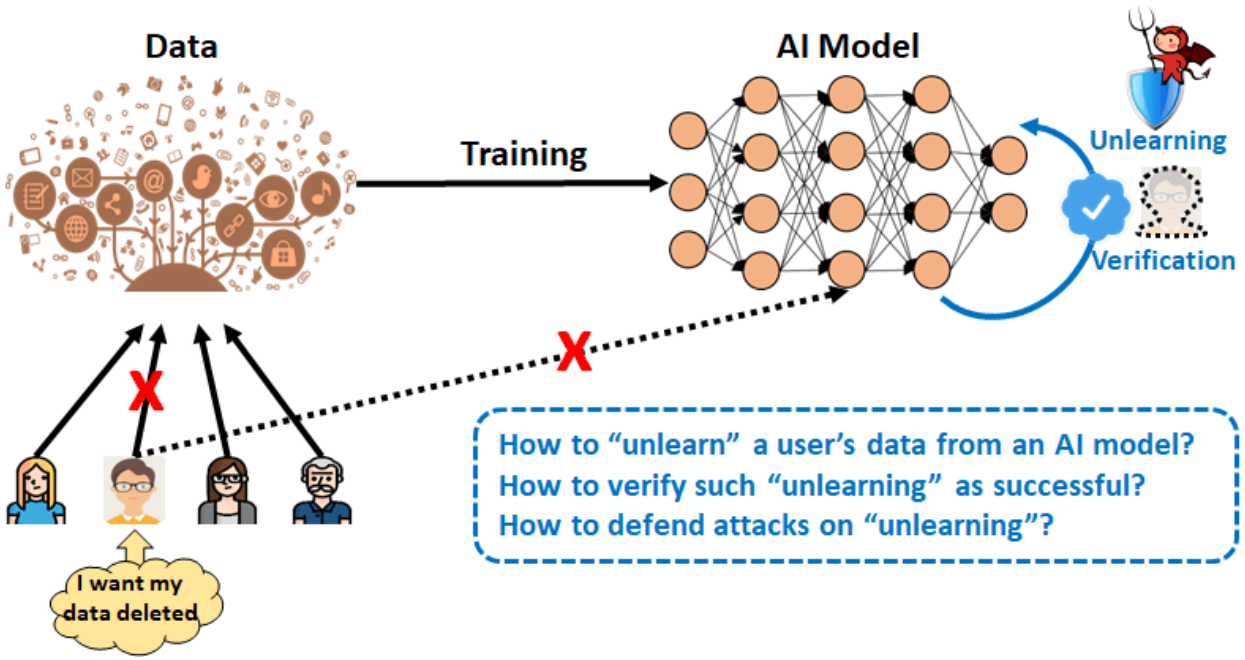
Possible Approaches

Federate Learning



- Each device has its local models;
- No training data shared between devices and the Server;

Machine Unlearning

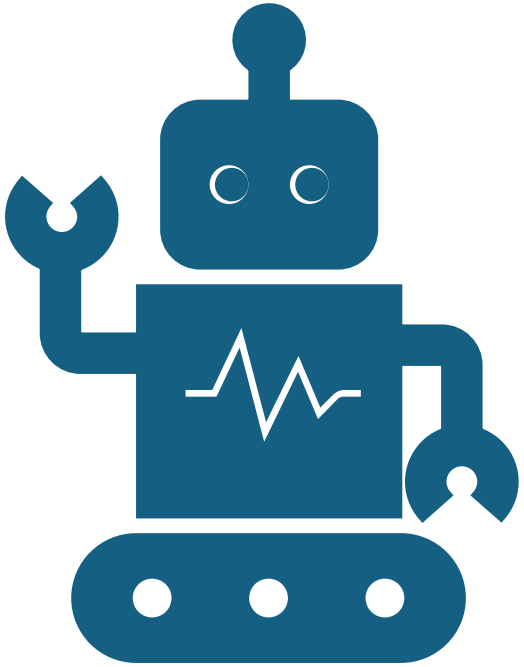


- Remove the user's data from the model;
- How can we make sure only user contributions to the model are removed?

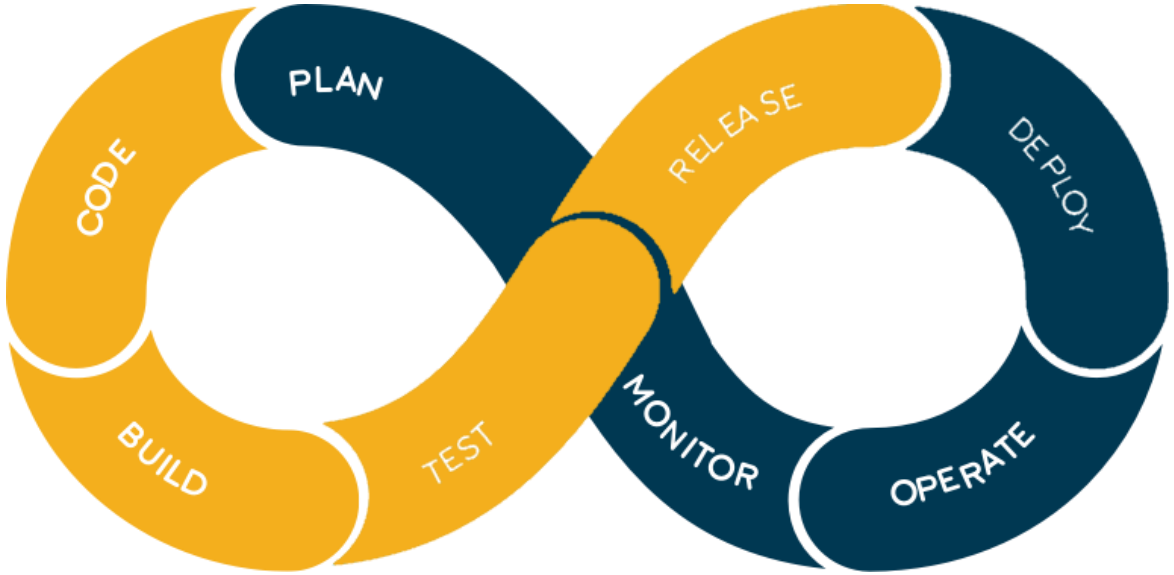
Considerations

Automation

Types of Automation

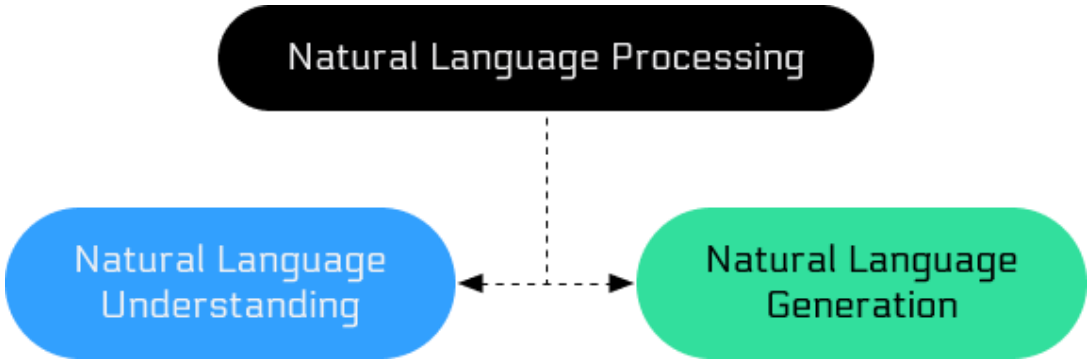


- Continuous Integration;
- Automated testing;
- Continuous Deploy;
- Process Automation;
- UI Testing;
- *Automated Issue Analysis;



CI/CD

Natural Language Processing



- The meaning and knowledge that computers receive from human speech are referred to as NLU;
- Natural Language Generation has scenarios (text data, text to text and Dialogue)

Possible NLP uses on software development

- Automatic log analysis;
- Similar problems identifications;
- Bug report synthesis;
- Code check;
- Code development assistance;

TAC 2024
Workshop on Trustworthy Artificial Intelligence and Cyber-Physical Systems

August 2024

Presenter: Volnei Da Silva Klehm

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