1. Visão geral da Inteligência Artificial

1.4 Projeções do Futuro para a I.A.

Marciel Barros

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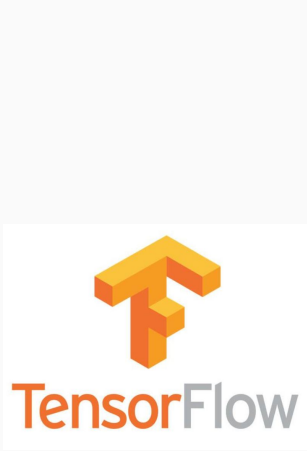
1. AI Overview
2. Technical Fields and Application Fields of AI
3. Huawei's AI Development Strategy
4. AI Disputes
5. **Future Prospects of AI**

Development Trends of AI Technologies

- Framework: easier-to-use development framework
- Algorithm: algorithm models with better performance and smaller size
- Computing power: comprehensive development of device-edge-cloud computing
- Data: more comprehensive basic data service industry and more secure data sharing
- Scenario: continuous breakthroughs in industry applications

Easier-to-Use Development Framework

- Various AI development frameworks are evolving towards ease-of-use and omnipotent, continuously lowering the threshold for AI development.

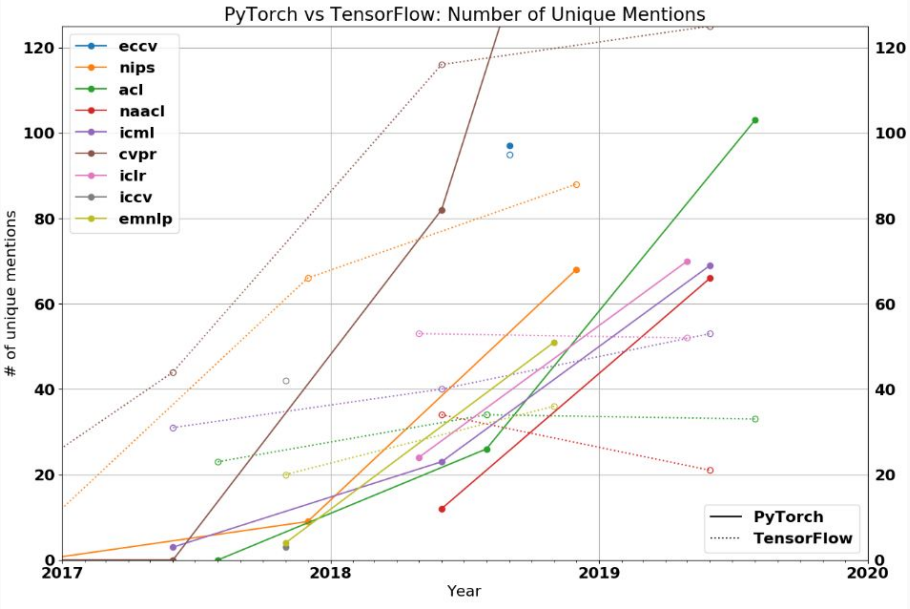


Tensorflow 2.0

- TensorFlow 2.0 has been officially released. It integrates Keras as its high-level API, greatly improving usability.

Pytorch vs Tensorflow

- PyTorch is widely recognized by academia for its ease of use.



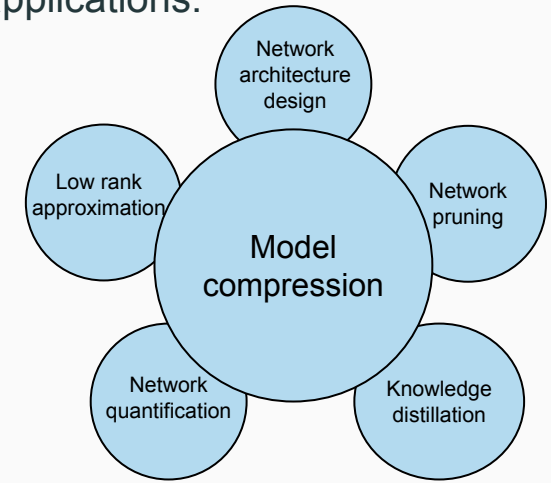
Comparison between PyTorch and TensorFlow usage statistics of top academic conferences

Algorithms Model with Better Performance

- In the computer vision field, GAN has been able to generate high-quality images that cannot be identified by human eyes. GAN-related algorithms have been applied to other vision-related tasks, such as semantic segmentation, facial recognition, video synthesis, and unsupervised clustering.
- In the NLP field, the pre-training model based on the Transformer architecture has made a significant breakthrough. Related models such as BERT, GPT, and XLNet are widely used in industrial scenarios.
- In the reinforcement learning field, AlphaStar of the DeepMind team defeated the top human player in StarCraft II.
- ...

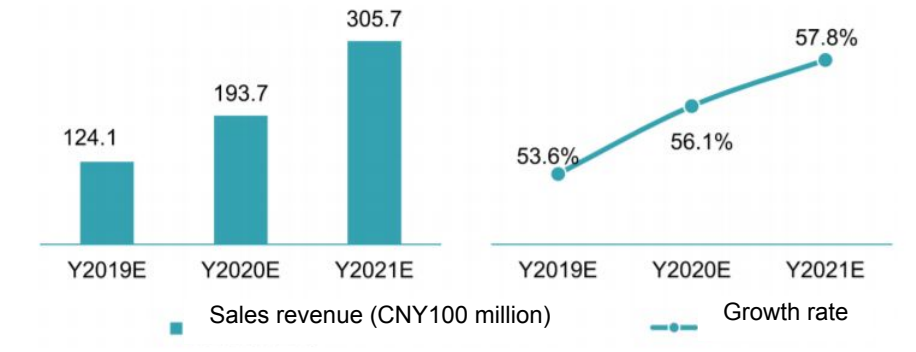
Smaller Deep Learning Models

- A model with better performance usually has a larger quantity of parameters, and a large model has lower running efficiency in industrial applications. More and more model compression technologies are proposed to further compress the model size while ensuring the model performance, meeting the requirements of industrial applications.
  - Low rank approximation
  - Network pruning
  - Network quantification
  - Knowledge distillation
  - Compact network design



Computing Power with Comprehensive Device-Edge-Cloud Development

- The scale of AI chips applied to the cloud, edge devices, and mobile devices keeps increasing, further meeting the computing power demand of AI.

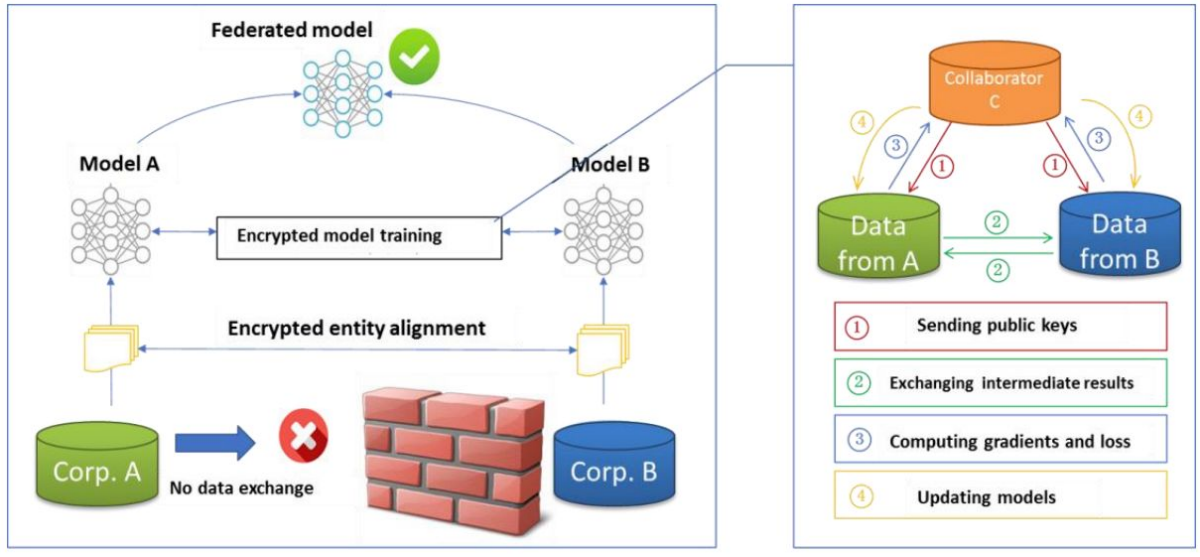


China AI Chip Industry Development White Paper 2020

Market Scale and Growth Prediction of AI Chips in China from 2020 to 2021

More Secure Data Sharing

- Federated learning uses different data sources to train models, further breaking data bottlenecks while ensuring data privacy and security.



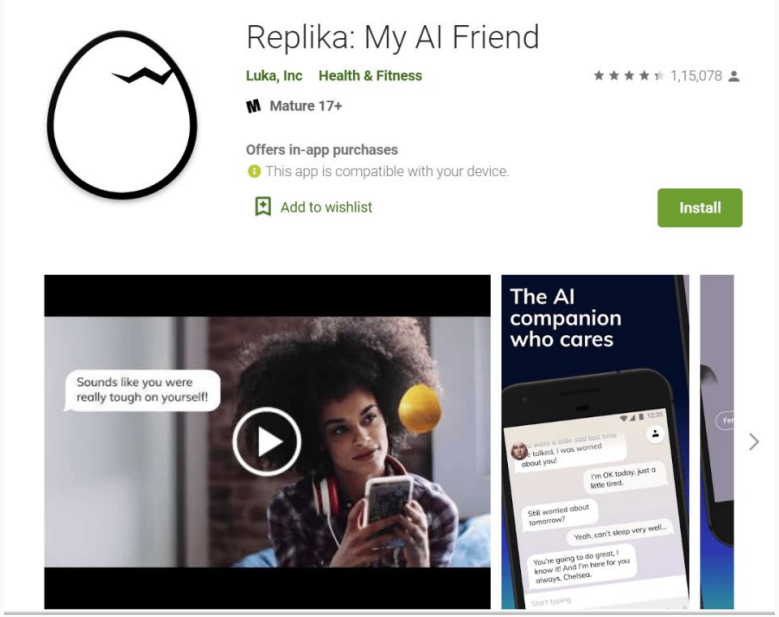
Federated Learning White Paper V1.0

Continuous Breakthroughs in Application Scenarios

- With the continuous exploration of AI in various verticals, the application scenarios of AI will be continuously broken through.
  - Mitigating psychological problems
  - Automatic vehicle insurance and loss assessment
  - Office automation
  - ...

Mitigating Psychological Problems

- AI chatbots help alleviate mental health problems such as autism by combining psychological knowledge.



Automatic Vehicle Insurance and Loss Assessment

- AI technologies help insurance companies optimize vehicle insurance claims and complete vehicle insurance loss assessment using deep learning algorithms such as image recognition.

Office Automation

- AI is automating management, but the different nature and format of data makes it a challenging task. While each industry and application has its own unique challenges, different industries are gradually adopting machine learning-based workflow solutions.

Summary

- This chapter introduces the definition and development history of AI, describes the technical fields and application fields of AI, briefly introduces Huawei's AI development strategy, and finally discusses the disputes and the development trends of AI.

- Huawei Knowledge Base
  - https://support.huawei.com/enterprise/en/knowledge?lang=en

THANK YOU!