

COMP603/ENSE600

Program Design and Construction/Software Construction

Lecture 07: Hello, AI (NLP)

Mr Jingli SHI

Outline

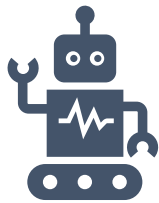
What is AI & NLP?

What can AI & NLP do?

Why should I learn AI & NLP?

Demo (Classification)

What is AI (NLP)?



Artificial Intelligence(AI) is a branch of computer science by which we can create intelligent machines which can behave like a human, think like humans, and able to make decisions.

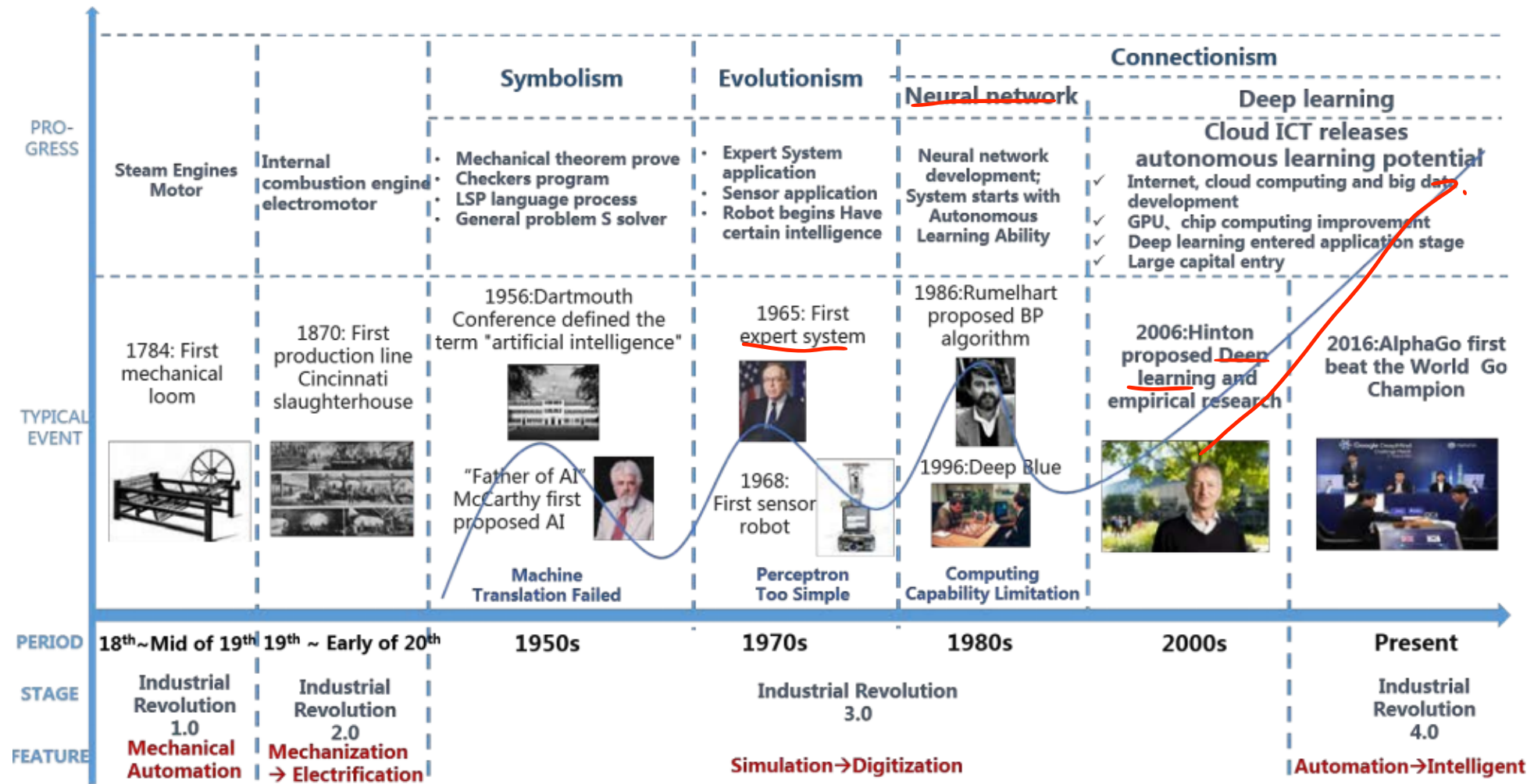


Natural Language Processing(NLP), is a branch of artificial intelligence that deals with the interaction between computers and humans using the natural language.



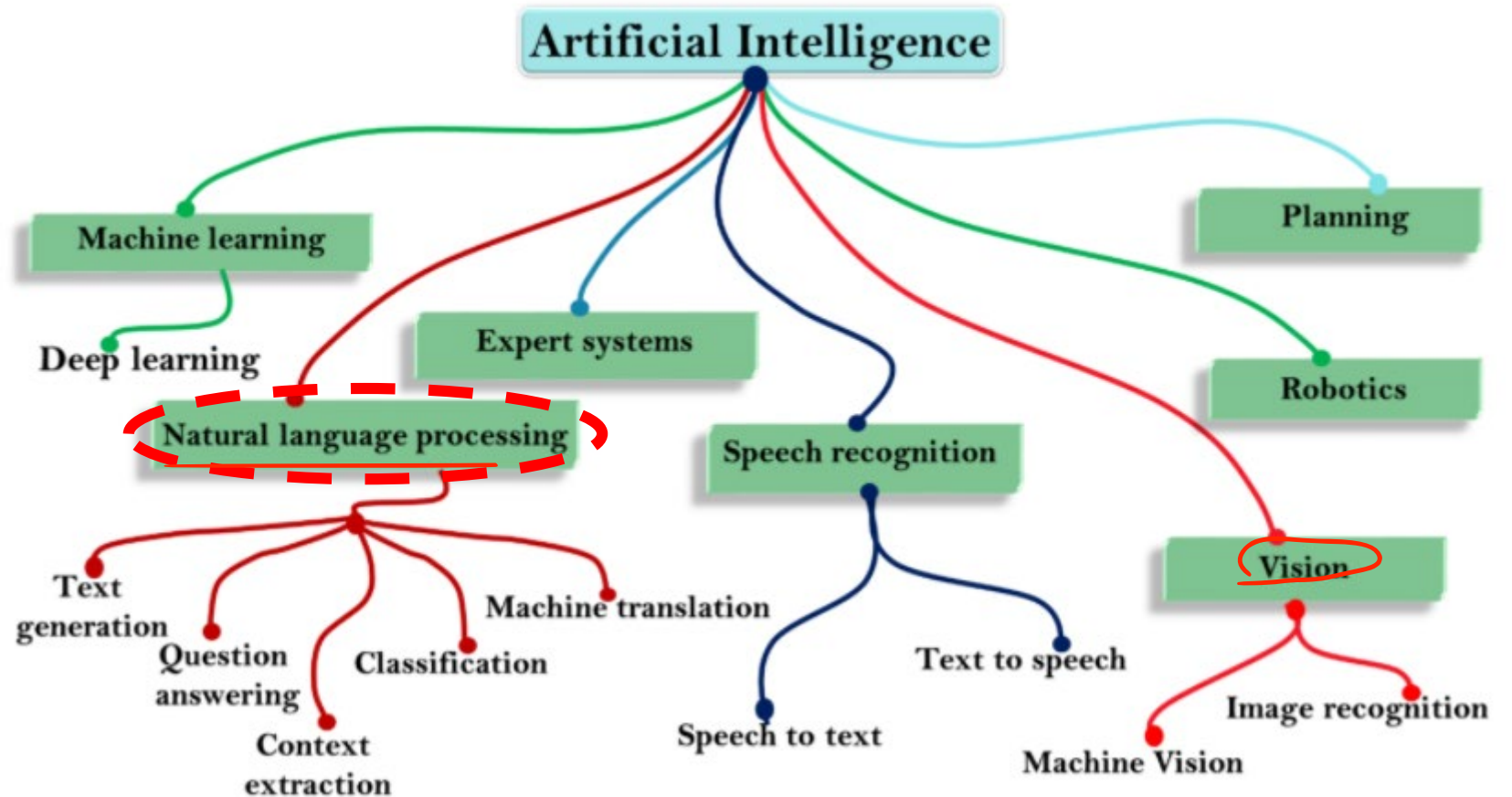
NLP pursuit to fill the gap between human communication and computer understanding.

AI - History

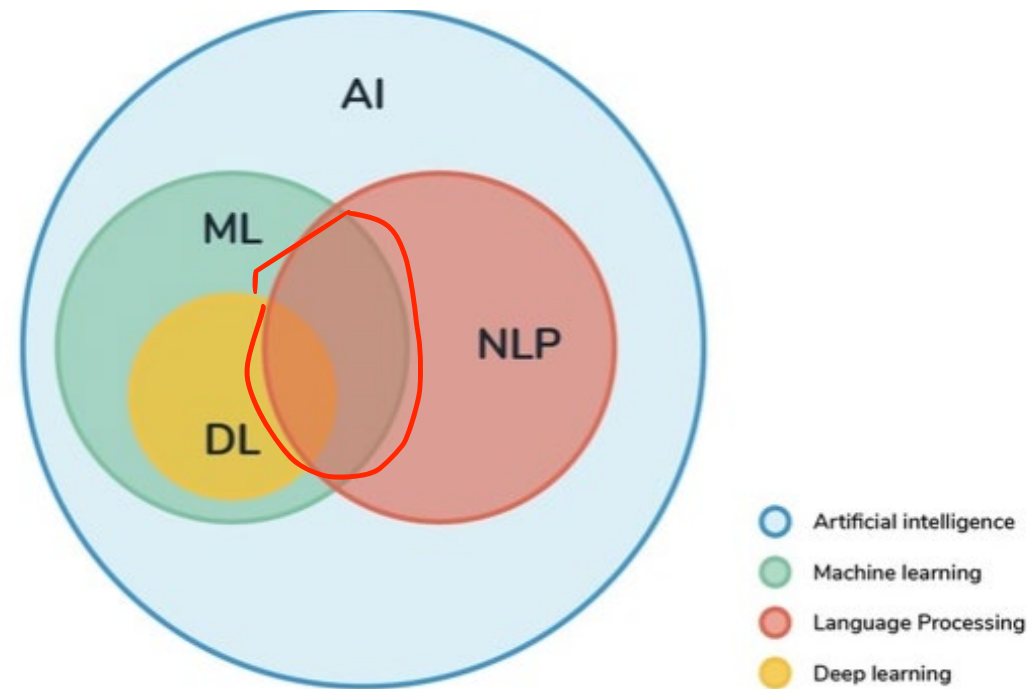


AI – Subsets

- ML
- NLP
- ES
- SR
- CV
- Robotics
- Planning
- ...

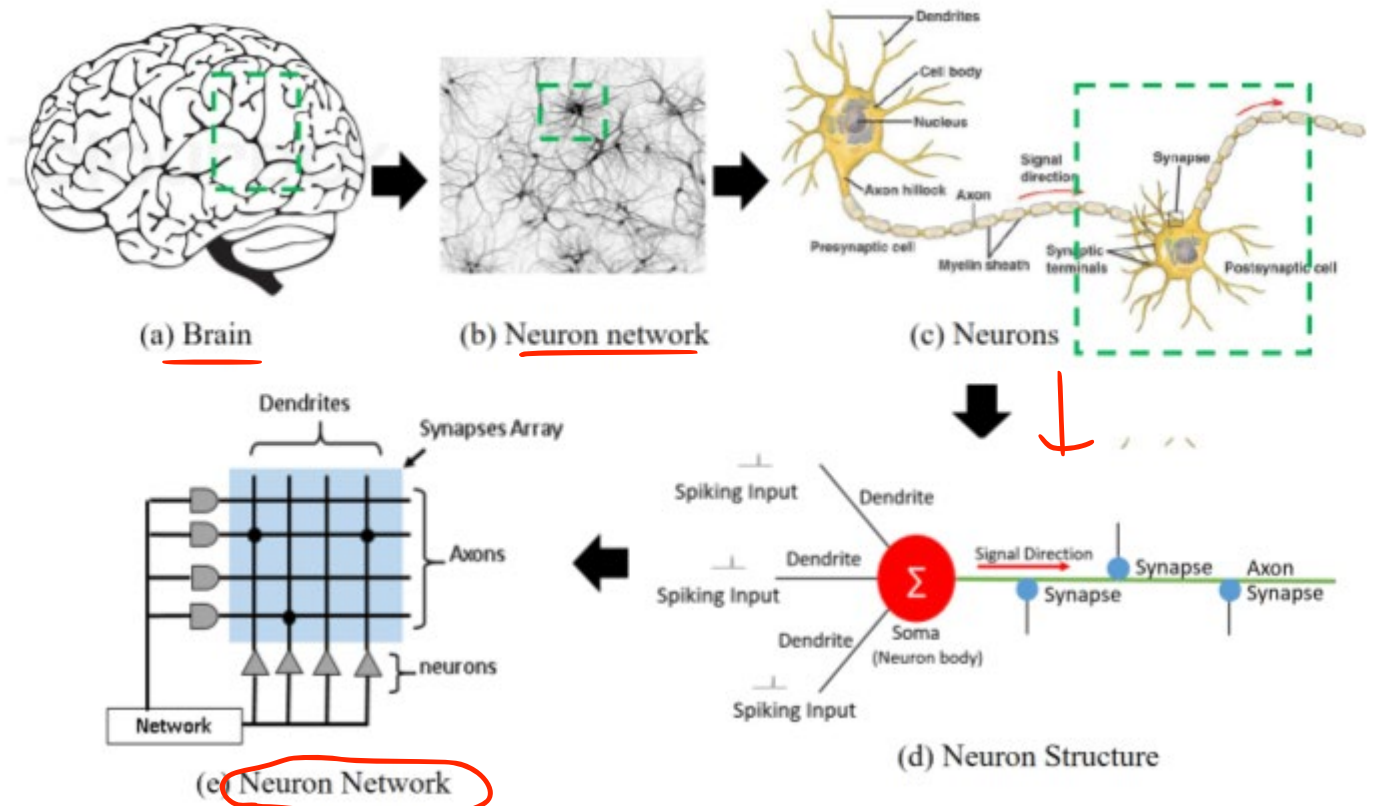


AI vs ML vs DL vs NLP



AI(NLP) – Neural Network Model

- Artificial neural networks try to mimic the biological neural network in the human brain.
- The human brain can be considered to be one of the best processors. (contain $\sim 10^{11}$ neurons)
- If we can copy this design, maybe we can solve the “hard for a machine – easy for humans” problem.



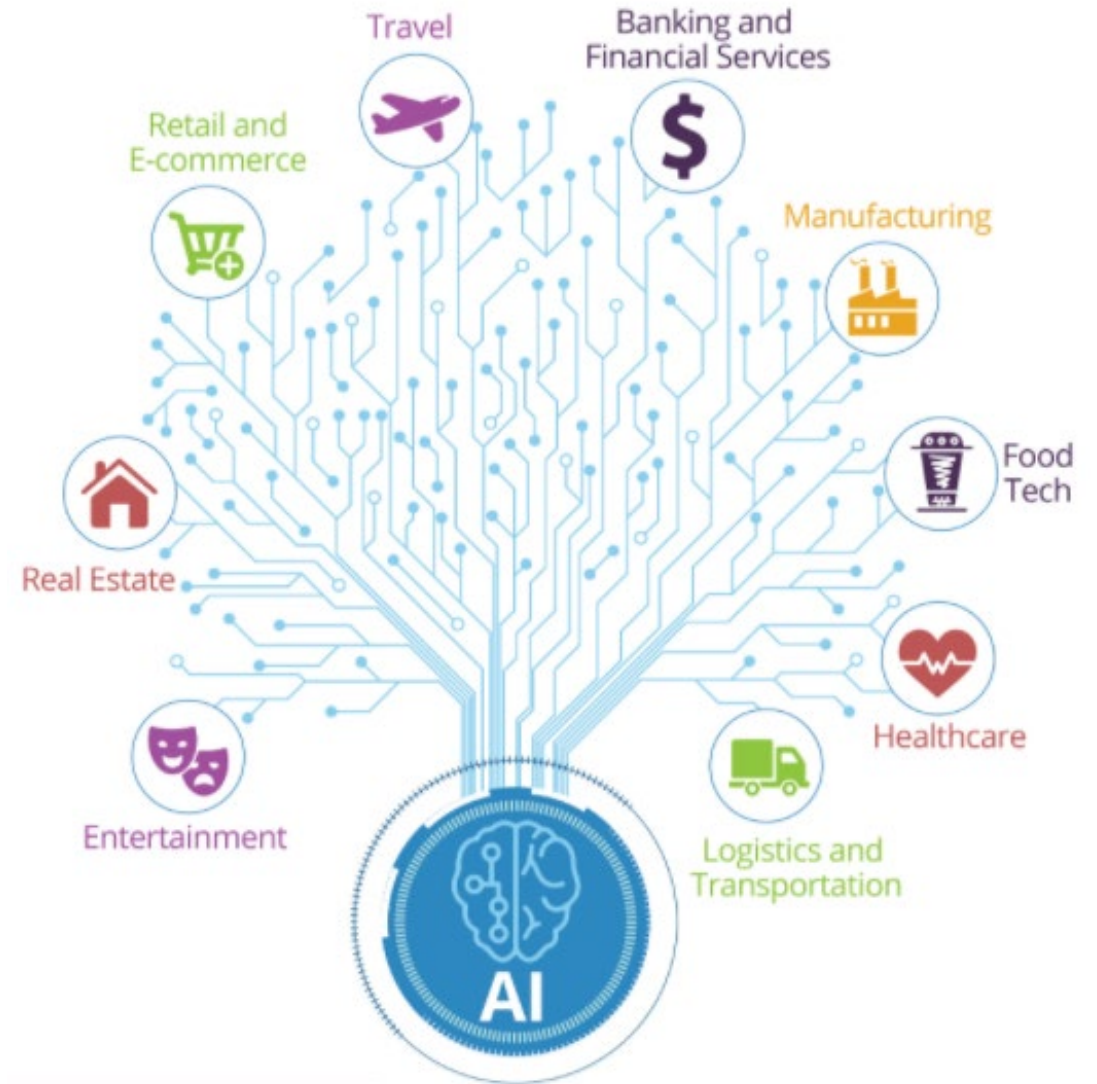
What can AI/NLP do?

- Social media monitoring
Warning label on user tweet.
- Sentiment analysis
Restaurant or food recommendation by Yelp reviews analysis.
- Spam filters
According to statistics, spam accounts for 45% of all emails sent, and about 14.5 billion spam emails are sent every single day.
- Autocomplete
Google search autocomplete; coding autocomplete.
- Smart Audio devices
Siri by Apple, Alex by Amazon, Google home, Cortana by Microsoft, etc.



AI (NLP) - Application

- Healthcare
 - COVID-19 cases modelling and tracking
- Finance
 - ANZ Digital Assistant - Jamie
- Entertainment
 - TikTok
- Travel
 - Air NZ digital human - Sophie
- ...



Demo: Coding-Assistant

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1 c|
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Demo: Coding-bot

Describe a layout.

Just describe any layout you want, and it'll try to render below!

A div that contains 3 buttons each with a random color.

Generate

Why Should I Learn AI(NLP)?



Short-term benefit: salary
improvement



Long – term benefit : prepare for
future jobs

AI Engineer

- Salary estimated from 53,163 employees, users, and past and present job advertisements on Indeed in the past 36 months. Last updated: August 21, 2020



Artificial Intelligence Engineer Salaries in San Francisco, CA

Salary estimated from 1,735 employees, users, and past and present job advertisements on Indeed in the past 36 months. Last updated: August 21, 2020

San Francisco

Popular Jobs

Average Salary

Salary Distribution

Data Engineer

303 salaries reported

Data Engineer jobs in San Francisco, CA

\$160,076 per year



Software Engineer

1,056 salaries reported

Software Engineer jobs in San Francisco, CA

\$159,318 per year



Business Intelligence Developer

14 salaries reported

Business Intelligence Developer jobs in San Francisco, CA

\$146,464 per year



Machine Learning Engineer

188 salaries reported

Machine Learning Engineer jobs in San Francisco, CA

\$183,997 per year



AI (NLP) in New Zealand

how many ai companies in new zealand

About 125,000,000 results (0.46 seconds)

There are literally 1,000's of **companies** leveraging **AI** in **NZ** so if you think a **company** should be listed here please email hello@newzealand.ai.

[newzealand.ai](#) > [nz-ai-companies](#)

[New Zealand companies developing AI applications ...](#)

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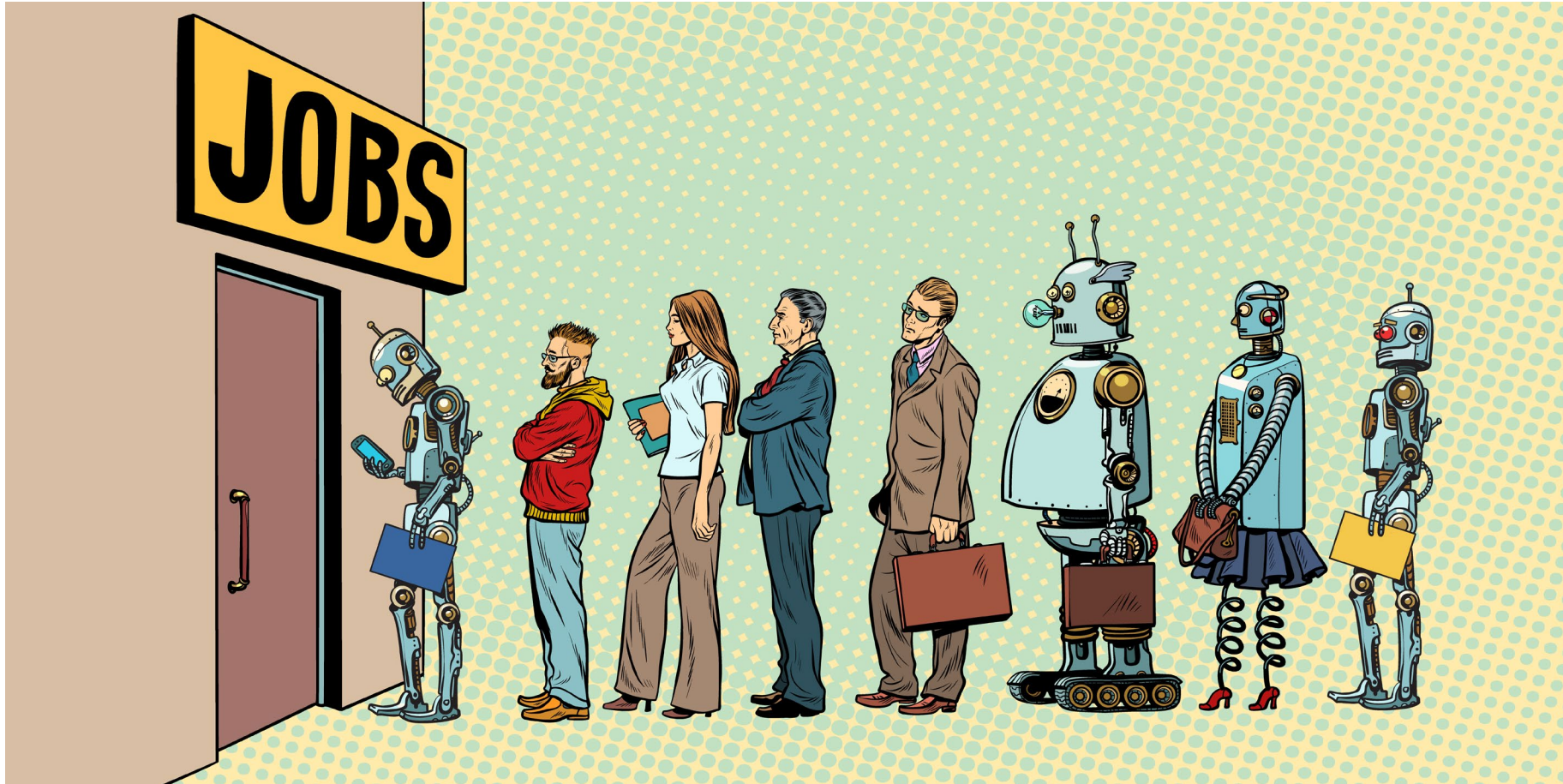




AI (NLP) – New Zealand

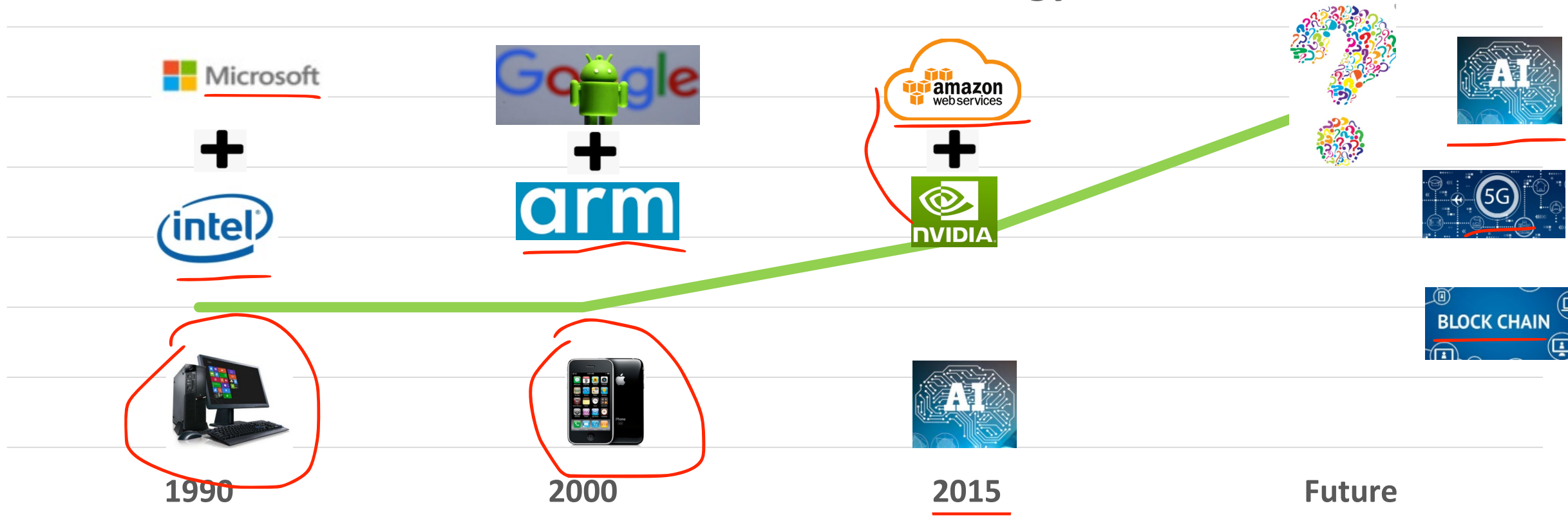
- Over 20% of the organisations surveyed have already adopted some form of AI system;
 - With 68% of respondents considering AI to improve customer relationship management;
 - With 61% planning to deploy intelligent assistants, or chatbots, to support enquiries;
 - With 62% planning to deploy AI to support financial analytics and management reporting.
-

Prepare for Future Job



What will future life be like?

New Era of Future Technology



Demo - Classification

- How to build a Machine Learning Model using Java?
 - Simple Machine Learning (Java & Python)
- Neural Network Playground
 - <http://playground.tensorflow.org/>

Reference

- Frey, Carl Benedikt, and Michael A. Osborne. "The future of employment: How susceptible are jobs to computerisation?." *Technological forecasting and social change* 114 (2017): 254-280.
- Artificial intelligence shaping a future New Zealand
- AI For Health in New Zealand
- Thinking Ahead – Innovation through Artificial Intelligence by Callaghan Innovation