# AI Course for Programmers

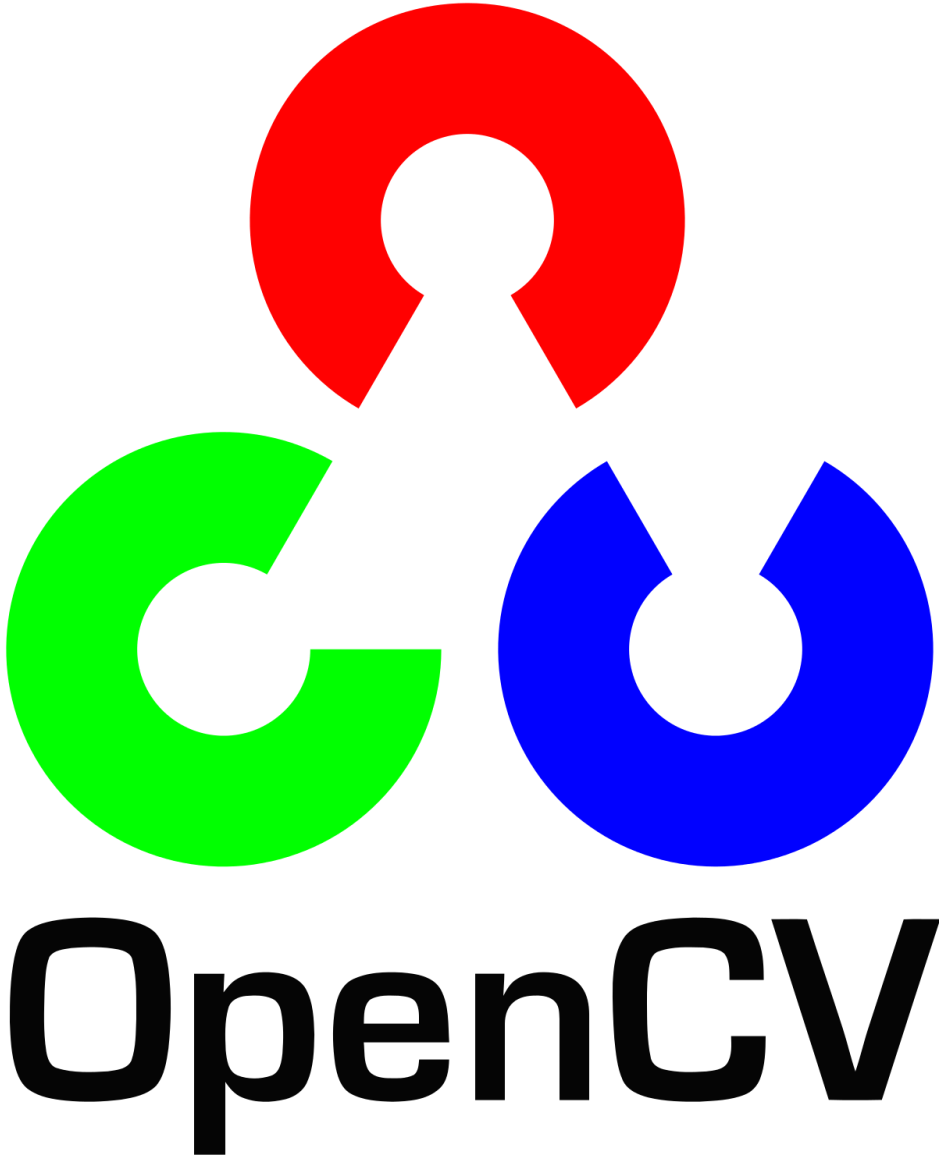
Thomas, Lai Hok Ming

# Basic Information

- Prerequisite
  - Familiar with any programming languages
- Github
  - https://github.com/hmlaiac/NEW_AI
- How to find me?
  - Personal Webpage: http://www.andiogame.com
  - Email: lxm8169@gmail.com

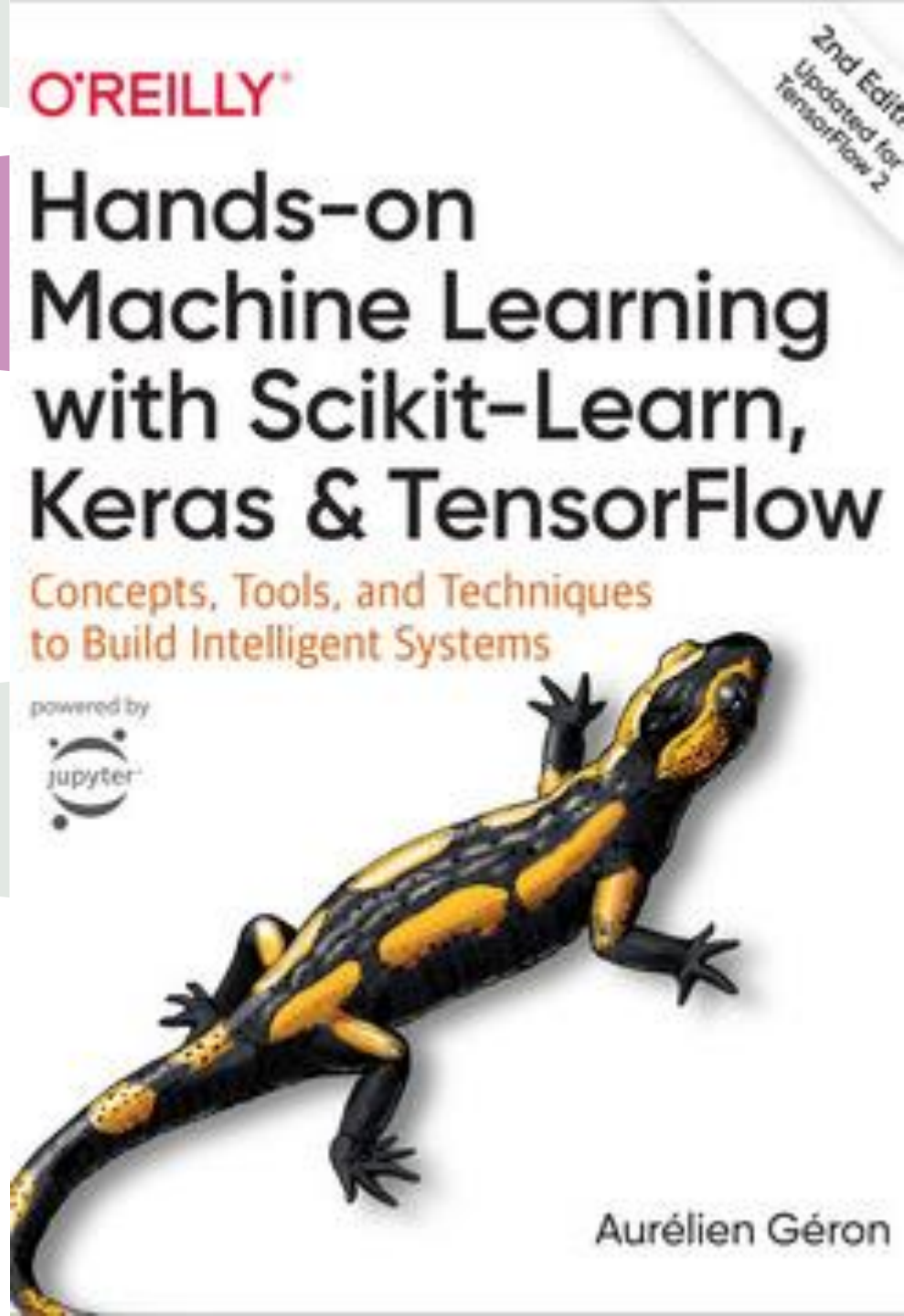
# Learning Outcomes

- Part A: Computer Vision and OpenCV
  - Object Detection
  - Object Tracking
  - Able to deal with most robotic problems



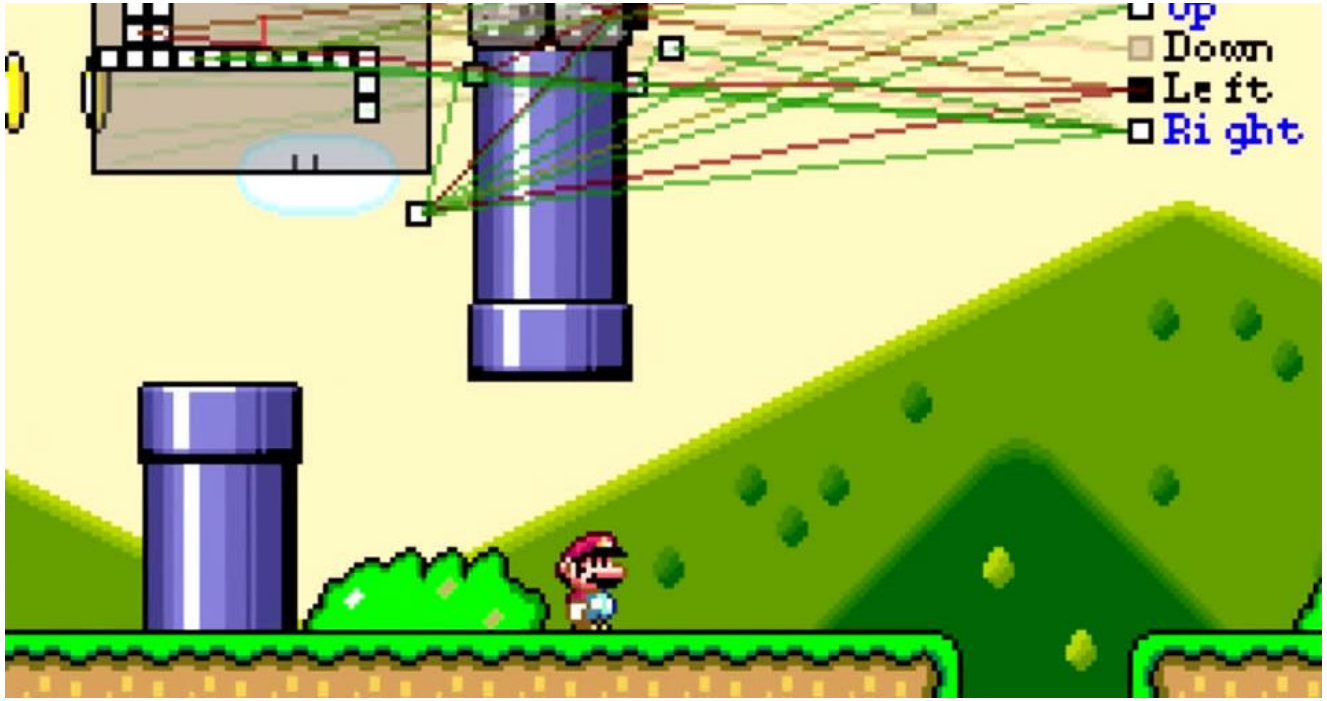
# Learning Outcomes (Cont)

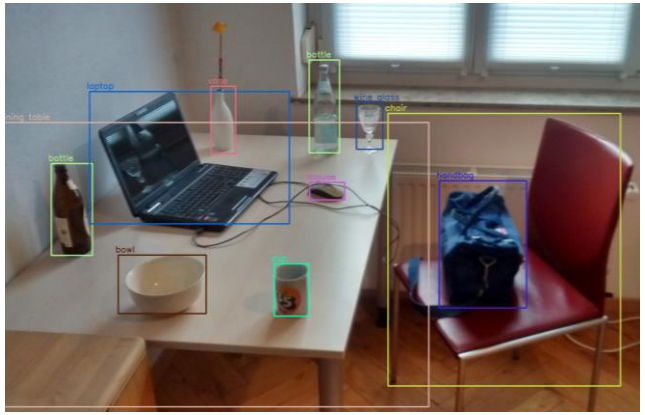
- Part B. Deep Learning and Reinforcement Learning
  - Sklearn: Machine learning
  - Tensorflow: Deep learning
  - Reinforment Learning
  - Suggested Book： Hands-on Machine Learning with Sckit-Learn, Keras and Tensorflow

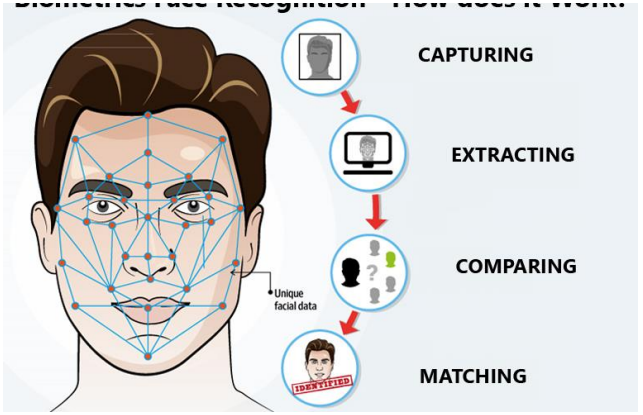


# Projects

- Face Recognition
- Object Detection
- Game Bot





# What is Artificial Intelligence?

- [Machine Learning is the] field of study that gives computers the ability to learn without being explicitly programmed. – Arthur Samuel, 1959
- 讓電腦在不固定程序的情況下擁有學習能力

# What is Artificial Intelligence?

- A computer program is said to learn from experience E with respect to some task T and some performance measure P, if its performance on T, as measured by P, improves with experience E. – Tom Mitchell, 1997
- 從過往的經驗中進行學習，並進行評估，最後達致一定的表現

# What is Artificial Intelligence?

- The traditional computer programs are solid and fixed. AI gives computers abilities to learn data (Experiences) to perform human-like tasks.
- 個人理解：人工智能解決了一些以往程序無法完成的事情，從數據即過去的經驗中進行學習，以達致一些特定的目標

# Example

| Problems | Program | Machine Learning |
| --- | --- | --- |
| How to handle unexpected accidents? | Imaginate all cases and convert them to programs | Run simulation and learn from experiences |
| How to handle vibration of Drone? | Physics and Equations, then convert then to programs | Study from sensing data and give a solution |

# Human VS Computer

- Vision (Computer Vision)
- Hearing (Natural Voice Processing)
- Touch (Robotics)
- Taste (Chemical Detector)
- Smell (Gas Detector)