Haotao Lai (Eric)

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Education Background

- **Concordia University** — **Montreal**
  Master in Computer Science (thesis-option), GPA 3.57 — *2016–now*
- **Guangzhou University** — **Guangzhou**
  Bachelor in Engineering, GPA 80% — *2012–2016*

Professional Skill

- **Programming Languages:** Java, C++, Python
- **English proficiency:** IELTS 6.5 (no band below 6.0)
- **Hardware development:** STM32, AVR, Arduino, 80C51

Research Interestes

- Computer Vision (with deep learning approach), my thesis goes into this direction
- Implementation of programming language, I TA the Compiler Design course at Concordia

Award

- Research Bursaries for graduate student (5000 CAD) — 2018 fall
- Concordia University Merit Scholarship (5000 CAD) — 2018 winter
- Guangzhou University outstanding graduation project award (2 / 200) — 2016 fall
- Guangzhou University the 2^nd and 3^rd place scholarship (2000 CNY, 1000 CNY) — 2016, 2015

Teaching Assistance Experience

All the courses listed here are happened at Concordia University (Montreal)
More information can visit: *https://laihaotao.me/ta*

- COMP345 Advanced Programming Design with C++ (with Dr. Joey Paquet) — 2017, 2018 fall
- COMP442/6421 Compiler Design (with Dr. Joey Paquet) — 2018, 2019 winter
- SOEN487 Web Services and Applications (withDr. Serguei A. Mokhov) — 2018 winter
- SOEN6441 Advanced Programming Practise (with Dr. Joey Paquet, Dr. Amin Ranjbar) — 2018 fall, 2019 winter

Academic Experience

OpenISS Framework

Research Project — 2018 fall until now

- Design the framework architecture
- Implement software layer to block the differences among camera hardware
- Integrate deep learning approach for object detection

Implement a reliable data transfer protocol on top of UDP

Team Project (1^st author) — 2017 fall
GitHub: *https://github.com/laihaotao/COMP6461*

- Implement a http client using TCP

- Implement a http file server using TCP
- Implement a multiplexing event based request handling mechanism
- Implement a reliable layer replaces the TCP used above

Pokemon-Go-Back card game

Team Project 2017 summer

GitHub: *https://github.com/laihaotao/COMP354*

- Project leader, organizer and the (2^{nd}) code contributor
- Design the project structure, code manager, bug report and communication procedure
- Implement the select deck mechanism
- Implement the some useful tools for other contributors
- Design the testing process and build the testing framework

Implement a compiler

Individual Project (1^{st} author) 2016 winter

GitHub: *https://github.com/laihaotao/COMP6421*

- Implement a lexical analyzer, syntactic analyzer, semantic analyzer, code generator
- TA this course and develop assignment and tutorial materials

A kind of weeding robot based on computer vision

Individual Project 2016.03 – 2016.06

- Outstanding graduation project award (rank: 2 / 200)
- Individually developed the whole system contains: Android, VB.net, Halcon, Network communication
- Video link (YouTube) to show the project: *https://www.youtube.com/watch?v=4Qx2GHp2ZII*

Internet express system

Team Project (1^{st} author) 2015.01 – 2016.06

- Received 10,000 CNY funding and a patent authorization (CN204576611U)
- Team leader of the whole project
- Created intelligence-based interactive system (both Android client and Java EE server)
- Implemented communication protocol between android and STM32 which is the control unit

Obstacle avoidance remote control robot

Individual Project 2015.09 – 2016.06

- Using RS485 communication protocol to organize the sensor network
- Using Visual Basic for master computer's UI and control system
- Used three casters for implementing moving system
- Design obstacle avoidance algorithm

Special projects for blind and disable children

Team Project (2^{nd} author), funded by Guangzhou Education Bureau 2014.09 – 2015.06

Entertainment based system (dancing mat) for blind children

- Developed using STM32, SD card, I2C communication protocol and DMA
- Through investigative research done at the Guangzhou Blind Children School to better learn how to design communication for children's needs

Disability assistant page reader

- Applied mechanical engineering design as 1st author for the linkage, and fabrication of the synchronous belt pulley and the motor

Forklift truck system

Team Project (1^{st} author) 2013.09 – 2014.06

- Developed (as 1^{st} author) using Arduino, Bluetooth, android, and 3D printer
- Received a 2^{nd} place award in school project competition
- An patent authorization (CN104102990A)