

Samuel Leong Chee Weng

EXPERIENCED PROGRAMMER · INTEREST IN ROBOTICS AND EMBEDDED SYSTEMS

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Education

Carnegie Mellon University (CMU)

Pittsburgh, PA, USA

RISING SOPHOMORE, ELECTRICAL AND COMPUTER ENGINEERING

Class of 2023

Key Classes Taken/Taking:

- 15-122: Fundamentals of Imperative Programming
- 18-100: Intro. to ECE
- 24-101: Fundamentals of Mech. Eng.
- 85-241: Social Psychology
- 21-259: Calculus in 3D
- 21-241: Matrices and Linear Transformations

Skills

Programming JavaScript, C/C++, Python, HTML5/CSS, NodeJS, Java, PHP/MySQL, ActionScript
Hardware Breadboarding/Soldering, TI-MSP430, Arduino
Languages English, Chinese, ASL

Experience

DSO National Laboratories

Singapore

RESEARCH INTERN: INTEGRATED DATA ANNOTATION AND AUGMENTATION TOOL FOR OBJECT RECOGNITION AND TRACKING

Feb. 2019 - Apr. 2019

- Successfully developed a data annotation and augmentation tool in C#. The tool was integrated with a proprietary algorithm provided by our mentor (adapted from YOLOv2 and another proprietary tracking algorithm).
- Used the tool we developed to generate bounding box data, correct it manually, and augment it automatically. We then used the data for retraining the said algorithm.
- Also explored ways to improve the algorithm by adapting it for use with YOLOv3 and other trackers.

DSO National Laboratories

Singapore

RESEARCH INTERN: LOW-POWERED WIRELESS SOUND PROCESSING

Jan. 2017 - Feb. 2017

- Successfully implemented and tested algorithm for communication between a TI-MSP430 microcontroller and an ASIC Chip (*Application Specific Integrated Circuit*), via the Serial Peripheral Interface (*SPI*) Protocol.
- Implemented data transmission from said microcontroller to another via Wi-Fi, to allow for wireless data processing.
- Algorithm further modified by organisation for their internal applications.

DSO National Laboratories

Singapore

RESEARCH INTERN: OPTICALLY-ILLUMINATED DIRECTIONAL SENSING FOR GUIDANCE SYSTEMS ⓘ

Apr. 2015 - Mar. 2016

- Successfully prototyped an analog circuit capable of demodulating and amplifying a frequency-modulated laser signal.
- Programmed algorithm on TI-MSP430 Launchpad microcontroller to digitise analog input from circuit. Digitised signal then used to sense direction of laser-point, and actuate a novel omni-directional land robot.
- Represented Singapore at Intel International Science and Engineering Fair (ISEF).

DSO National Laboratories

Singapore

RESEARCH (TEAM): ANALYSIS OF MULTIMODAL INTERACTION METHODS FOR MULTI-TASKING ⓘ

Apr. 2014 - Jan. 2015

- Tested intuitiveness and efficiency of multiple interaction methods (eye-tracking, gestures, touch, speech and keyboard) in completing load-intensive tasks, via a custom-designed Flash game.
- Helped team design said Flash game, and a custom website to highlight advantages of eye-tracking.
- Presented to then Minister of State for Defence, Mr Maliki Osman, at the Young Defence Scientists Congress

Honors & Awards

INTERNATIONAL

2016 **Finalist**, Intel International Science and Engineering Fair (ISEF)

Phoenix, AZ, USA

NATIONAL

2017 **Awardee**, DSTA Undergraduate Scholarship (Overseas)

Singapore

2016 **Gold, ISEF Delegate**, Singapore Science and Engineering Fair (SSEF)

Singapore

2014 **Bronze**, National Informatics Olympiad (NOI)

Singapore

2014 **2nd (Team), Bronze (Indv.)**, Singapore Physics Engineering Challenge

Singapore

2014 **Bronze**, Singapore Junior Physics Olympiad (SJPO)

Singapore

2014 **Outstanding Student Award**, Hwa Chong Institution Founder's Day

Singapore

2013 **Bronze**, Singapore Junior Physics Olympiad (SJPO)

Singapore

Extracurricular Activities

CMU Foosball Club

Singapore

VICE-CHAIRPERSON

2019 - Present

- Vice-Chairperson of the CMU Foosball Club. Revived the club after 6 years of inactivity, with another fellow enthusiast (current chairperson)
- Intending to participate in next year's Kentucky foosball state championships.

Hwa Chong Computer and Robotics Club

Singapore

CHAIRPERSON

2011 - 2016

- Chairperson of the Junior College (2016) and High School (2014) section of the club. Facilitated the merger and co-operation of the computer and robotics club.
- Gained expertise in web and game programming through self-motivated learning. Also trained for the National Informatics Olympiad, and attained bronze in 2013.
- Challenged my programming skills by participating in several team competitions:

2015 **3rd**, NYAA Canada-Singapore Website Design Competition

2015 **Consolation Award (4th)**, Singapore Games Creation Competition (SGCC) ⓘ

2014 **Finalist (Top 5)**, Splash Awards (app prototyping competition)

2014 **Commendation Award (Top 10)**, SGCC ⓘ