

PATRICK JOHN CHIA YI HEAN

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EDUCATION

Imperial College London

London, United Kingdom

MEng (Hons) Electronic and Information Engineering (1:1)

October 2016 – Present

First Year. : **86.6%, Dennis Gabor Prize** (Top in Department), Dean's List, **EIE Best Project Prize** (FPGA Image Processing)

Second Year: **87.2%, Silvanus P Thompson Prize** (Top in Department), **BP Dean's Award**, Dean's List

Key Modules: Machine Learning, Operations Research, Robotics, Communication Systems
Deep Learning, Advanced Signal Processing, Embedded Systems, High Level Programming

St Andrew's Junior College

Singapore

January 2012 – December 2013

A-levels: Computing – A (Top), Mathematics – A, Physics – A (Top), Economics – B, General Paper – B

Linear Algebra @ National University of Singapore – Merit

Awards: Mrs Grace Ballas Scholarship, SAJC Scholarship, Jacob Ballas Bronze Award (Computing, Physics),
Infocomm Development Authority of Singapore JC Computing Award

Note: Conscripted National Service from Jan 2014 – Jan 2016

WORK EXPERIENCE / RESEARCH

Self-Directed Research, Quantitative Finance

London, United Kingdom

August 2018 – September 2018

- Investigated statistical and equation-free model approaches towards profiting from stock markets
- Examined fundamental concepts and ideas such as random walk theory, fat-tailed distributions and stationarity through various literature such as research papers and books
- Acquired experience with Data-Science Python Libraries such as Pandas and NumPy

Kydon Holdings

Singapore

Freelance

June 2016 – August 2016

- Developed an ePub authoring tool to enhance the work flow of content designers
- Designed entirely from scratch in a small team of two - using Flask microframework
- Developed understanding of HTML, CSS and Javascript and Project Management

KEY SKILLS

Programming : C++, Python (incl. Pandas, NumPy), JavaScript, ARM Assembly, Verilog, Vivado HLS

Software Tools : EAGLE, KiCad, GNU Bison, GNU Flex, GNU GLPK

INTERESTS AND PROJECTS

Robotics and Embedded Electronics

Picked up electronics and programming skills independently from a young age. Participated in the All Japan Micromouse Competition 2015 on own initiative, with a self-developed Micromouse. Keen to develop impactful robots and devices that improve the quality of human life. Has experience dealing with embedded systems both in an academic setting and on personal projects.

C89 Compiler

Designed and developed a C89/90 to MIPS-I Assembly compiler from scratch using GNU tools - Flex and Bison for lexing and parsing, and C++ for Code Generation. Established intricate understanding of each stage of compilation, their interdependence and the tools and skills required to build a compiler. Project Mark: 94%

MIPS I Simulator

Worked in a pair to build a MIPS-I Simulator in C++ as part of the Computer Architecture module. Achieved full, accurate instruction coverage of the given instruction scope which included Branching and Unaligned Memory Access. Designed an automated test-bench for verification of the Simulator. Project Mark: 100%

FPGA Image Processing

Utilised an FPGA to perform line detection on documents based on input video feed. Algorithms for edge detection and line detection were designed with careful use of Vivado High Level Synthesis (HLS). A high throughput and FPS was attained with the use of fine and coarse grain pipelining and a double buffering technique. Awarded Best Project in First Year.