Aaron Tsz-Wang Ko

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EDUCATION

Imperial College London **London, UK**
MEng Electronics and Information Engineering (Upper Second Class) Oct 2019 – Present
Modules taken: Advanced Computer Architectures, Discrete Maths and Algorithms, Distributed Algorithms, Software Systems, Operations Research, Compilers, Signal Processing

Diocesan Boys School **Hong Kong**
International Baccalaureate Sep 2016 – Jul 2019
Grades: 41/45 (Top 2% Globally) (Physics HL 7/7, Math HL 7/7, Chemistry 7/7)

WORK EXPERIENCE

ARM Ltd **Manchester, UK**
Intern Software Engineer Apr 2022 – Sept 2022
- Refactored applications for extensive use cases and compliance to the SEI Cert C Coding Standard
- Doubled the maximum drivable clock rate for 2 of the existing Image Signal Processing IPs

GDS Services Ltd *(World's leading 3rd party data-centre provider)* **Shang Hai, China**
Intern Software Engineer Jul 2021 – Sept 2021
- Automated SLA adherence checks with an algorithm based on statistical analysis of existing database
- Prototyped websites and applications with improved UI to streamline incident report processes

Origami Group Limited *(Start-up specialised in bone conduction technology)* **Hong Kong**
Intern Electronics Engineer Jul 2018 – Sept 2018 / Oct 2020 – Dec 2020
- Conducted performance tests on bone conduction telecom product (OFLO) and smart ring (ORII)
- Increased battery life of OFLO by 50% through discovery of unnecessary CPU usage in logged data
- On-field debugging and configuring OFLO for deployment at Luxury Hotel the HARI Hong Kong
- Optimised power efficiency of ORII by reconfiguring actuator towards the axis of sound propagation

PROJECTS

Muti-threaded C program optimisation (Mttkrp Challenge) *Mar 2022 – Apr 2022*
- 89% reduction from the original time and a 887% increase in GFlop/s for 5D tensor calculation
- Utilised Vtune analysis tool to evaluate effect of vectorisation, threading, linker optimisation

Music Synthesiser Firmware (Extendable piano keyboard) *Mar 2022 – Apr 2022*
- Developed threaded firmware to operate keyboard, speaker and LED display on single core processor
- Ensured thread safe operations under limited resource using mutex and critical sections
- Profiled and optimised the system to ensure functions are completed within their allotted time intervals

The Canary (MQTT Pub/Sub Device Network) *Mar 2022 – Apr 2022*
- Developed a scalable device communication network for monitoring extensive mining operations
- Enforced network data encryption by running MQTT and HTTP over TLS for network security

Mars Rover *Jun 2021 – Jul 2021*
- Collaborated with electrical engineering students to build an autonomous Mars exploration rover
- Developed the vision to detect surrounding-coloured objects and provide coordinates to the rover
- Applied gaussian filter in hardware using Verilog, and RGB to HSV conversion in software using C

C Compiler (MIPS GCC) *Jun 2021 – Jul 2021*
- Designed a C-to-MIPS compiler that supports basic arithmetic operations, control flow, and stacks
- Utilised Yacc & Bison to lex and parse program syntax, and C++ to generate file with MIPS instructions

EXTRA CURRICULARS

Imperial College Public Awareness and Social Service Society **Imperial College London**
President
- Hosted mentorship program for over 200 participants to connect alumni and current students of ICL
- Raised £1,000 for World Vision with a fundraiser with 200+ participants from 20+ UK universities

SKILLS & INTERESTS

Languages: Fluent in English; Native in Chinese (Cantonese & Mandarin)
Technical Skills: C++, C, Verilog, Python, Bash, SQL, Yacc & Bison
Interests: Violin (Performed at Czechia, Vianden), Erhu (Leader of School Chinese Orchestra)