Frankie, Ka-yiu HUI

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Cranfield University

PERSONAL STATEMENT

A passionate and self-motivated candidate with interests and practical knowledge in aviation, robotics, and computer science. Exhibits strong multi-disciplinary self-learning and problem-solving skills, reinforced by broad exposure in both professional and academic fields. Effective communicator, fluent in English, Mandarin, and Cantonese at Business/Native Level. Desire to work in a collaborative environment to drive future aviation innovation.

KEY ACHIEVEMENTS

- Won the local contest of Asia-pacific robotics competition (ABU Robocon) in 2017 and 2018 and represented Hong Kong to compete in the international contest.
- Conferred Dean's list for the 2021 spring semester during my bachelor's degree in HKUST.
- Developed an open-source web-based air traffic simulation tool, AirTrafficSim in 2022.
- Submitted a conference and a journal paper in the field of air transportation and arrival sequencing in 2022.

EDUCATION

MSc Aerospace Computational Engineering: Cranfield University, UK (September 2022 – September 2023)

- **Modules**: C++ programming, Computational methods, Numerical modelling for incompressible and compressible flow, Analysis and Visualisation of Big Data Systems and High-Performance Computing, Modelling Approaches for Aerospace Applications, Computational Engineering Structures, Validation and Verification for Aerospace Applications.

BEng Aerospace Engineering, minors in Information Technology and Robotics: The Hong Kong University of Science and Technology, Hong Kong (September 2016 – June 2021)
Ranked 27th in QS World University Ranking in 2021. Graduated with a 2:1 degree with a GPA of 3.208 and conferred Dean's list for the 2021 Spring semester.

- **Aerospace modules**: Aerodynamics, Jet propulsion, Aircraft structure, Aircraft performance and controls, Composite Material, Solid and fluid Mechanics, Thermodynamics, Nanosatellite, UAV.
- **Computer science modules**: Software engineering, Fundamentals of artificial intelligence, Image Processing, Object-oriented programming and data structure.
- **Robotics modules**: Embedded system, Control system.
- **Final year design project**: "Novel bio-inspired glider design". Collaborate with a group of 5 to analyse and apply bio-inspired features (bird's wing tip and covert feathers) for glider's wing design through leading CFD (OpenFOAM) analysis and conducting wind tunnel experiments.

CAREER HISTORY

The Hong Kong University of Science and Technology: Hong Kong – Research assistant (October 2021 – September 2022)
Established in 1991, HKUST is ranked 1st in Engineering in Hong Kong.

- Joined the department of mechanical and aerospace engineering's Optimization and Computation for Transportation and Aircraft Design Laboratory under the supervision of Professor Rhea P. LIEM.
- Designed and built a lab website using WordPress for the research group.
- Developed and published an open-source web-based air traffic simulation software AirTrafficSim written in Python and JavaScript which is used to study new arrival sequencing algorithms for Hong Kong International Airport.

- Submitted a conference paper, H. C. Nguyen et al., “Tactical routing for air transportation in HKIA terminal manoeuvring area”, *The 26th HKSTS International Conference*, to be published, and a journal paper, K. Y. Hui et al., “AirTrafficSim: An open-source web-based air traffic simulation platform”, *The Journal of Open Source Software*, submitted for publication.

Hong Kong Industrial Artificial Intelligence and Robotics Centre (FLAIR): Hong Kong – Research engineer (August 2021 – October 2021)
FLAIR is established by the Hong Kong Productivity Council (HKPC) to support Hong Kong’s development into an international innovation & technology hub.

- Researched and constructed prototypes for a computer-aided assembly sequence planning system by analysing and building mathematical models around the relationship of conflicts between different components using FreeCAD.

CLP Power: Hong Kong – Information Technology internship (June 2019 – June 2020)
Established in 1901, CLP Power is one of Asia’s largest power utility companies with over 8000 employees serving more than 80% of Hong Kong’s population.

- Involved in the company’s cloud transformation projects, including Active Directory Federation Services (ADFS) and remote desktop upgrades and migrations, in the IT department’s infrastructure team and strategy and architecture team.
- Assisted in the communication with vendors for system planning and testing as well as documentation.
- Devised presentation decks and carried out tutorials to promote new cloud-based IT systems, including new log-in and remote desktop experiences, workflow automation systems and the O365 suite.

EXTRACURRICULAR ACTIVITIES

Lead Mechanical Engineer: HKUST Robotics Team (September 2016 – September 2018)
HKUST robotics team is a team of multi-backgrounded and multi-discipline undergraduate students competing in various international robotics competitions.

- Won the local contests of the Asia-pacific robotics competition (ABU Robocon) 2017 and 2018.
- Represented Hong Kong to compete in the international context in Japan and Vietnam. Awarded best Design Award and Mabuchi Motor Award in ABU Robocon Japan 2017.
- Leaded a group of 10 mechanical engineering students to design, build, and test robots and various mechanisms.
- Effectively communicated with manufacturers in mainland China for the manufacturing of machined parts and materials as well as hardware and software members to iteratively improve the design.
- Organised the recruitment events and “Robot Design Contest” for freshmen in 2018 as Person-In-Charge. Tasks include formulating and hosting tutorial sections, creating game rules, organizing the contest’s game field and logistics, and managing different senior members’ tasks.

SKILLS & INTERESTS

- **Languages**: Fluent in English, Mandarin, and native Cantonese.
- **Certificates:** Microsoft Azure Fundamental AZ-900 certificate (Cloud infrastructure).
- **Projects**: Designed and programmed an amphibious (“Land-Water-Air”) quadcopter with an STM32 microcontroller. Personal website projects.
- **Engineering Skills**: Proficient in SolidWorks and experienced with CATIA, CFD (OpenFOAM, Fluent), and Paraview. Competent with CNC, additive manufacturing, and operating machinery and hand tools.
- **IT Skills**: Confident IT user. Proficient in Microsoft Office and Adobe creative softwares.
- **Programming Skills**: Proficient with GitHub, Python, C, C++, and full-stack web programming (React.JS and Flask). Experienced with MATLAB, Java, HPC, Linux, and embedded system programming.
- **Individual Interests**: Enjoys photography, videography, and playing music including guitar and piano.