# Hui Ling Wong

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## EDUCATION & QUALIFICATIONS

### IMPERIAL COLLEGE LONDON | MEng Aeronautical Engineering with a Year in Industry

2016 – 2021 | Expected 1st | Awarded Aeronautics Student Centenary Prize for top mark in GDP

- Specialising in: control theory, and computational modelling and simulations
- Implemented numerical model in parallel C++ to find the solution to the generalised 2D Burgers' Equation, while maximising the efficiency and execution speed (ranked 5th in year) by exploiting vectorisation and parallelism
- Modelled the flight dynamics and control for the conceptual design of a hybrid electric transport aircraft (in MATLAB) for Group Design Project (GDP)
- Relevant completed modules: high-performance computing, optimisation, numerical analysis, computational fluid dynamics and innovation management

### CONCORD COLLEGE | A Levels

2014 – 2016 | United Kingdom

- A Levels: Physics (A*), Mathematics (A*), Further Mathematics(A*)
- AS Levels: Economics (A), Photography (A), Further Mathematics Additional (A)

### SINGAPORE CHINESE GIRLS' SCHOOL | GCE 'O' Levels

2010 - 2013 | Singapore

- Completed 9 subjects (including Mathematics and English) with 8 distinctions

## WORK & RESEARCH EXPERIENCE

### LOAD CONTROL AND AEROELASTICS LAB | Undergraduate Researcher

2020 | United Kingdom

- Extended functionality of SHARPy (Simulation of High Aspect Ratio aeroplanes in Python) an aeroelastic analysis package by implementing a solution (via User Datagram Protocol) that allows simulation results to be accurately reflected in X-Plane (flight simulator)

### AIRBUS DEFENCE AND SPACE | AOCS/GNC Intern

2019 - 2020 | United Kingdom

- Responsible for an R&D project (in Python) involving the investigation and development of an online-learning Artificial Intelligence (AI) algorithm for Fault Detection, Isolation and Recovery (FDIR) on spacecraft; focusing on the Attitude Orbit Control System (AOCS) subsystem
- The project involved:
  - Synthesised project into simpler components to understand inner workings and behaviours of various algorithms. Thereby, allowing for complexity to be built up to real-life use cases on AOCS data from ESA's Solar Orbiter
  - Guided development process with Technology Readiness Level milestones to ensure commercial viability
- Took initiative to assist main team's activities and deliverables by:
  - Independently drafted patent proposal and extensively collaborated with in-house legal for patent filing of offline AI FDIR algorithm
  - Independently compiling 50+ page literature review, which was highly commended by supervisor; this included current machine learning methods for anomaly detection, generative adversarial networks (GANs), hyperparameter tuning, verification and validation of neural networks, on-board software considerations (both hardware and software), and recommendations with trade-off analysis between publication or patenting the offline AI FDIR algorithm
  - Ensured said literature review was written with sufficient technical depth for further research and high-level explanations such that it was comprehensible for management without a technical background

### ST ENGINEERING AEROSPACE | Summer Intern
2018 | Singapore

- Assisted with the stress mechanics analysis of the aircraft frames for the A320/321 passenger to freighter conversion programme
- Improved processes and efficiency through the development of a macro in Excel VBA to map the ID number of bar and shell elements of the 3D finite element model (of the A320/321) onto a 2D excel sheet that indicates their respective frame and stringer bay locations. This was consequently adopted into their workflow
- Independently created a user manual of said macro, which also included the core concepts of the algorithm, assumptions, worked solutions, and methodology that allowed for future users to extend functionality to more complex and edge cases

### IMPERIAL COLLEGE UNION | Squash Coach of Imperial Women's 1st & 2nd Teams
2017 – 2019 | United Kingdom

- Coaching sessions required fast decision making, adaptability, flexibility and knowing each team member's strengths and weaknesses to ensure optimal allocation of players for effective training
- Coached over 20 members of varying abilities; 1st team placed within the top 16 in the country during both years

## ACHIEVEMENTS & RESPONSIBILITIES

### IMPERIAL COLLEGE SQUASH CLUB | Multiple Positions
2016 – 2019

- Founder and Tournament Director of Imperial College Doubles Open (2017-2019) and Chair (2018-2019)
- Initiated the creation of doubles tournament to raise funds (making 30% profit); constituted of 3 categories, with a maximum participation of 96 players. This created a platform for doubles squash to be played at an inter-university level and was attended by representatives from several universities
- Managed relations with tournament sponsor, budgeted, planned, devised draws and scheduled court allocations
- As Chair, managed club of approximately 120 members and closely collaborated with Treasurer to transform finances to cash positive. For example, agreeing on a more careful spending approach

### IMPERIAL COLLEGE DEPARTMENT OF AERONAUTICS | 2nd Year Academic Representative
2017 – 2018

- Proposed initiatives to improve the course to staff, based on feedback from students, to identify a student-centric solution to problems that accommodated the viewpoints of the staff
  For example — Improved existing system by implementing a more informal line of communication to highlight issues thereby resolving them swiftly
- Awarded Best Undergraduate Student Representative Team (2017-2018) by Imperial College Union for ensuring democratic and effective representation of the views of their constituency, and improving the teaching and learning experience of their students in a lasting and measurable way

### SINGAPORE NATIONAL SQUASH TEAM | Member
Jan 2011 – June 2013

## SKILLS

### PROGRAMMING LANGUAGES
Proficient: Python • Matlab
Intermediate: C++ • Microsoft VBA • LaTeX
Basic: SQL

### SOFTWARE | Proficient
Git • Excel • Simulink • Creo Parametric • Vim

### SPOKEN & WRITTEN LANGUAGES
Native: English — IELTS 9
Fluent: Chinese — Mandarin

### CERTIFICATIONS
Fundamentals of AI — AI for Industry by AI Singapore
England Squash Level 1 & 2 Coaching Qualification

## REFERENCE
Available upon request