Leung Ho Kwan Chris

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Education and Qualifications

2020-2021 **MSc Bioinformatics and Systems Biology** (Distinction)
The University of Manchester
Modules: Bioinformatics, Computational Approaches to Biology, Programming Skills, Statistics &
Experimental Design
Research Project 1: Establishment of a genotype phasing pipeline from chromatin conformation data
to improve understanding of the genetics of musculoskeletal diseases
Research Project 2: Transcriptome mining to create catalogues of spidroin sequences and repetitive
motifs

2017-2020 **BSc (Hons) Biological Sciences** (Upper second-class honours)
Imperial College London
3rd Year Modules: Stem Cells Regeneration Aging, Integrated Systems Biology, Biodiversity Genomics
- Final Year Project (Upper second-class honours): Perturbation of root hair distribution with
  external electric fields
2nd Year Modules (Upper second-class honours): Applied Molecular Biology, Genetics, Resource
Management, Virology, Ecology
- 1 Week Ecology Field Course: Learned to construct pitfall traps, beetle sampling and
  identification, tree biomass and spatial density measurement
- Tutored Dissertation (Upper second-class honours): What are the important features of green
  roofs affecting human health and well-being in urban environments?
- Genetics report (1st Class Honours): Identification of mutation types by reversion and
  suppression of *his- Salmonella typhimurium* mutants
1st Year Modules (Lower second-class honours): Biological Chemistry and Microbiology, Biology of
Organisms, Cell Biology and Genetics, Ecology and Evolution
- Bacterial growth Team-Based-Learning experiment (1st Class Honours)

2005-2017 **Po Leung Kuk Choi Kai Yau School, Hong Kong**
IB Diploma Programme: 40; HL Biology (6), HL Physics (7), HL Geography (7), SL Mathematics (6), SL
English A Language & Literature (6), SL Chinese A Language & Literature (5), TOK & CAS (3)
Cambridge IGCSE: 11 Grade A* - A, including 7 Grade A*, 4 Grade A
IELTS: 8.0 (Sept 2016)

Work Experience

2021-2023 **Research Associate**
**Centre for Immunology & Infection - C2i; Laboratory of Data Discovery for Health (D²4H), The
University of Hong Kong, Hong Kong**
1. Meta-analysis of microbiome in mosquito from seventy 16s amplicon sequencing datasets. QIIME2
   pipeline and analysis in R with High-performance computing (HPC). Learned to make relative
   abundance plot, heatmap, dimension reduction plots. Publication pending
2. AI image classification of mosquitoes from surveillance, applying deep learning software to our
   lab's dataset of mosquito images. Complete background (noise) removal in mosquito images
3. Analysis of virome from mosquito surveillance. De novo assembly of mosquito transcriptome with
   Trinity, then Diamond BLAST with virus sequence database; identify bloodmeal host and putative
   novel virus species based on RdRp gene similarity, visualization with krona. Publication pending

4. Appsheet no-coding inventory app for wet-lab samples and kits used by the lab, with emphasis on the ID of samples/kits, their downstream outputs, and their location within containers within fridges
5. Literature search for documentation of tick virus occurrences to generate world maps of tick virus seroprevalence
6. Analysis of non-retroviral integrated RNA viruses (NIRVs), endogenous viral elements (EVEs), and sRNA machinery in the genome of *Aedes albopictus* mosquito cell line C6/36 and *Aedes aegypti* mosquito cell line Aag2, to investigate potential of virus interference in *Aedes albopictus* and *Aedes aegypti* mosquitoes
7. Machine learning architecture for detection and classification of eukaryote, bacteria, fungi sequences from metagenome sequence datasets, using k-mers and De-Bruijn graph as input into neural network
8. Object tracking for 3D mosquito flight in a cage, using deep learning software DeepLAbCut

2019	**Summer Intern**

The University of Hong Kong, Hong Kong
2 month Integrated Biology and Evolutionary Ecology research on host-microbiome interactions using genomics analysis of chitons (mollusca), and on sea urchins (echinodermata) coelomic fluid.
Supervised by Dr Gaitán-Espitia Juan Diego and Bovern Arromrak (PhD student)
Learned to use DNA extraction kits to obtain host and microbiome DNA from tissue samples, BioDrop spectrophotometer to measure DNA concentration, PCR to obtain 16s rRNA for microbiome identification, gel electrophoresis and imaging

2017   **Tutor (part-time)**
Po Leung Kuk Choi Kai Yau School, Hong Kong
Taught IB Diploma students HL Physics in small groups. Developed teaching skills, confidence in teaching, and good communication with students

2015 Dec   **Volunteer**
1 Week Service in Siem Reap, Cambodia
Taught local students in a rural village english and maths. Involved in building a dormitory for teachers in a rural school. Community service with children in a rural village. Developed good attention to detail, adaptability to stress, interpersonal skills, and self-awareness

2015   **Waiter (part-time)**
Golden City Kitchen, Tai Wai, Hong Kong
Took customer orders, served meals, cleared and set tables. Developed good work ethic, skills in verbal communication and customer service

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Leadership and Achievements

2018-2019   **Imperial College Interact Society Committee, Secretary**
A volunteering society that organises one-off projects in the local community around Imperial College. helped out at a food bank, a planting project, and at a dog shelter. Developed good organisational skills, initiative in planning and executing volunteering projects

Imperial College Chinese Society Committee, Sports Secretary
A cultural society that promotes and integrates Chinese culture within the student community and serves as the stepping stone to unify all Chinese students studying abroad at Imperial College

2017   **Po Leung Kuk Scholarship for Outstanding Achievements in IB Diploma Programme**
Po Leung Kuk Choi Kai Yau School, Hong Kong

2015   **Po Leung Kuk Scholarship for Outstanding Achievements in Cambridge IGCSE**
Po Leung Kuk Choi Kai Yau School, Hong Kong

Skills

Computer Skills
Programming Languages: Proficient in Python, Java, Matlab, R, and LaTeX. Learned statistics and data analysis, linear regression models, ANOVA, chi-squared test, heatmap, t-SNE, bioinformatic pipelines
Operating Systems: Proficient in Linux and Microsoft suite

Languages
Fluent speaker of English, Cantonese and Mandarin
Currently learning German (Level CEFR B1+)

Interests

Aviation Completed First Solo Flight in 6.8 hours, am working towards a pilot licence
Sports I play a lot of sports including football, tennis, and athletics for leisure
Violin Performed in secondary school string band