Hoi Yan Ian Heung | 香愷仁

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Experience

Data Consultant — *Davidson, NC, USA*
Data CATS — 08/2023 - Present
- Deliver data analytics and machine learning services for academic faculty, student researchers, and local companies
- Design and facilitate workshops focused on enhancing participant skills in AI, data science, and machine learning

Undergraduate Research Associate — *Davidson, NC, USA*
Algorithms for Learning in Physics Applications (ALPhA) — 08/2023 - Present
- Rejoined research group to advance the development of 3D convolutional neural networks (CNNs) for particle classification
- Conduct preprocessing and sanitization of particle beam datasets for robust model training and analysis
- Implement various 3D Sparse Tensor Network frameworks to enhance computational efficiency and predictive accuracy

Undergraduate Research Associate — *Davidson, NC, USA*
Algorithms for Learning in Physics Applications (ALPhA) — 01/2022 - 08/2022
- Spearheaded the development of 2D and 3D CNNs to enhance particle classification accuracy in physics experiments
- Collaborated with the Facility for Rare Isotope Beams for generation of Monte Carlo particle track data for model training
- Presented work at the 2022 Verna Miller Case Symposium at Davidson College

Research Internship — *Okinawa, Japan*
Okinawa Institute of Science and Technology Graduate University — 05/2023 - 08/2023
- Selected to a prestigious research internship program that accepts a limited number of undergraduate and graduate students
- Engaged in research in the Experimental Quantum Information Physics Unit under Assistant Professor Takahashi Hiroki
- Engineered a PID controller on an FPGA board utilizing HDL programming, enhancing laser frequency stabilization
- Developed FIR and IIR digital filters to minimize background noise, optimizing the PID controller performance

Undergraduate Research Associate — *Davidson, NC, USA*
Davidson Research Initiative — 05/2022 - 08/2022
- Identified radioisotopes and analyzed radioactivity of soil samples from Lake Norman through gamma ray spectroscopy
- Engineered and executed gamma-ray emission simulations utilizing GEANT-4 software to assess detector efficiency
- Transformed raw detection data into 3D histograms for analysis using the CERN-ROOT data analysis framework
- Presented work at 2022 Physics Congress, and 2022 Fall Meeting of the Division of Nuclear Physics

Education

Davidson College — *Davidson, NC, USA*
Bachelor of Science, Physics Major, Computer Science Minor — 08/2020 – Present
- Expected Graduation: 05/2024 | GPA: 3.9
- Advanced Coursework: Computational Physics, Data Structures, Quantum Mechanics, Electronics and Instrumentation

Temple University Japan Campus — *Tokyo, Japan*
Spring 2023 Study Abroad — 01/2023 - 04/2023
- Abroad Coursework GPA: 3.9

Extracurricular Activities

Founder and President — *Davidson, NC, USA*
Davidson College Hong Kong Society — 09/2022 - Present
- Collaborate with board members to host cultural events to showcase Hong Kong culture to the Davidson College community
- Development of a supportive network for Hong Kong students yet to adapt to American collegiate environment

Founder and President — *Davidson, NC, USA*
Davidson College Badminton Club — 10/2021 - Present
- Organize regular training sessions to enhance team performance and prepare for intercollegiate badminton tournaments
- Provide personalized coaching to new members on fundamentals, strategic gameplay, and physical conditioning

Programing Languages, Software, Skills

Main Programming Skills:	Bash Scripting, Python, PyTorch, TensorFlow, Command Line, Linux
Proficient Programming Languages:	C, C++, Java, Kotlin, SQL, Verilog
Software:	Android Studio, CERN ROOT, GEANT-4, MATLAB, Microsoft Excel, Xilinx Vivado
Skills:	Data Analytics & Processing &, Machine Learning, Nuclear Physics, Signal Processing

Languages and Interests

Languages:	Native in Cantonese, English, Mandarin	Fluent in Japanese (JLPT N2)	Beginner in Korean
Personal Interests:	Baseball, Basketball, Badminton, Cooking, Football, Language Learning, Travelling, Violin