WALTER KONG

HP: (+65) 86192672 Email: kwalter@u.nus.edu

EDUCATION

National University of Singapore (NUS) **Aug 2019 – Present**

Bachelor of Engineering (Hon.) in Computer Engineering

- Cumulative Average Points: 4.78/5.00 (Expected 1st Class Honours)
- A+ for CS2040C Data Structures and Algorithms
- Taking CS3230 Algorithm Design and Analysis, CS3243 Artificial Intelligence
- Guest Student in CS3233 Competitive Programming

TECHNICAL SKILLS

- **Main:** Most Proficient (6 years) in Python (collections, NumPy, Pandas, TensorFlow.Keras)
- **Competitive Programming:** C++ STL (Rank <700 on Kattis)
- **Data Analysis Techniques:** NLP (n-gram, LSA, word2vec), Time Series Analysis (MA, ACF, RNN, LSTM), and Metrics (eg F1 score, PR curve, Entropy/Perplexity)
- **Statistical Tools:** Octave

EXPERIENCE

Private Tutor for H2 Computing **Jan 2019 – Present**

- Hired by multiple students and families to coach programming problems and prepare examination strategies, improving student grades from S (Mid Year) to A (A Levels).
- Maintained availability online to clarify students' queries and check up on progress.
- Support for own daily expenses and interests (mountaineering below).

Research Intern, DSO National Laboratories **Jan 2019 – Jul 2019**

- Assigned to implement research papers on novel Deep Learning methods for computer logs to detect anomalous events, enhancing cyber defense efforts.
- Developed end-to-end unsupervised model by applying NLP techniques and feature engineering operational data using Jupyter, Numpy, and Keras, which was well-received by supervisors and security staff.
- Constantly updated supervisors on findings and communicated expectations, which led to refining better metrics, implementing relevant algorithms, and achieving high model performance (95% F1 score).

Student Research Intern, DSO National Laboratories **Jul 2015 – Jan 2016**

- Devised signal processing algorithm in Octave to extract ship information from satellite imagery, enhancing "Search and Rescue" capabilities and maritime operations.
- Refined research findings from scratch and were awarded opportunity to present on stage to then Senior Minister of State for Defence, Mr Ong Ye Kung.

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Student Research Intern, DSO National Laboratories **Oct 2014 – Jan 2015**

- Collaborated in team of 4 to design experiments and game materials (Flash), to increase task performance with multi-modal input (eg eye-tracking + hand gestures to control aircraft).
- Wrote a research paper selected for main presenting booth to then Minister of State for Defence, Dr Mohamad Maliki bin Osman.

EXTRA-CURRICULAR PROJECTS & COMPETITIONS

Champions, I'm The Best Code Challenge 2019 (Undergraduate) **Oct 2019**

- Live coded efficient and most accurate (95.1%) solutions to Shopee's problems (keyword classification, fraud detection) in Python.
- Awarded opportunity to visit Indonesia headquarter to network and learn about emerging markets and Shopee's processes.

Algorithmic Problems **Jan 2019 – Present**

- Led problem discussions online and participate in SG LeetCode and JavaScript meetups.
- Solve challenging problems weekly due to interest in algorithmic thinking and upgrading programming skills.
- Mastered NumPy in Advent of Code, and currently ranked <600 on Kattis with C++ STL.

Path Finding / Mapping Bot with Arduino, Pi, RPLIDAR **Aug 2019 – Present**

- Collaborated in team of 4 to build circuitry (proximity, ultrasonic sensor, PWM wheels) and software (C) for autonomous bot to complete maze within safety margins.
- Upgraded with GPIO interrupt setup, reliable SLAM algorithm, reduced power usage (Arduino PRR, offloaded computation with ROS) for RC exploratory bot.
- Meet up weekly to hack solutions and discuss improvements.

CO-CURRICULAR ACTIVITIES

Training Subcommittee, NUS Mountaineering (Varsity) **Aug 2019 – Present**

- Summitted Baden-Powell Peak (Himalayas, 5825m) with entire team and overcame freak weather conditions and altitude sickness.
- Facilitate and lead rigorous trainings every Mon, Tues, Thurs, Sat for newer members to become technically and physically competent in mountaineering.

ADDITIONAL INFORMATION

- **Languages:** Proficient English, Mandarin, Written German (GCE O-Level), Basic Japanese (Self-Taught)
- **Interests:** Algorithmic Problems, Photography, Rock Climbing, Post-Modern Philosophy