

EDUCATION

NATIONAL UNIVERSITY OF SINGAPORE Singapore
Computer Science and Mathematics Double Degree Programme May 2016

- *Computer Science*: 4.7/5 GPA; completed focus areas in “Algorithms & Theory” and “Artificial Intelligence”
- *Mathematics*: 4.5/5 GPA; majored in Applied Mathematics with additional Mathematics courses such as graduate Recursion Theory
- *Honours*: Dean’s List (top 5%), First Class Honours in Computer Science, and First Class Honours in Applied Mathematics
- *Valedictorian finalist*: One of the 3 final candidates to be considered for Valedictorian of School of Computing
- *Computer Science Thesis*: Designed methods to maintain dynamic maximal independent sets
Nominated for NUS Outstanding Undergraduate Researcher Prize (an annual, university-wide competition)
- *Mathematics Thesis*: Studied notions of Kolmogorov complexity of binary strings in automata theory and CFGs
- *University Scholars Programme*: A selective (180 students) multidisciplinary academic programme for undergraduates
Awarded President’s Honour Roll which recognizes outstanding academic accomplishments and student-led co-curricular activities

EXPERIENCE

DSO NATIONAL LABORATORIES Singapore
Defence Scientist — Cognitive Fusion Lab (CFL) June 2016 – Present

- Applied A.I. techniques to security related problems in military contexts, including cryptanalysis, SAT solving and reverse engineering

DSO NATIONAL LABORATORIES Singapore
Research Intern — Cognitive Fusion Lab (CFL) May 2013 – Jul 2013

- Worked on a research project to improve the performance of speech-to-text recognition for military applications
- Constructed a novel technique that uses High Order Semi-Conditional Random Field (HOSemiCRF) to improve accuracy
- Extracted and built features in a test dataset that attempts to transcribe a conversations with multiple speakers in a meeting

NATIONAL UNIVERSITY OF SINGAPORE Singapore
Research Assistant — SeSaMe (Augmented Reality Library) Aug 2012 – Dec 2012

- Worked in a team to build an augmented reality library system on mobile devices
- Designed a framework and protocol to interface mobile devices with the server and communicated it to other engineers
- Developed an algorithm that identifies spatial coordinates and orientation of user within a building using visual landmarks

DEFENCE SCIENCE & TECHNOLOGY AGENCY (DSTA) Singapore
Research Intern — C4I development (PC8) Feb 2011 – May 2011

- Worked with other engineers to harness and exploit science and technology to meet the defence needs of Singapore
- Designed an in-house Unmanned Aerial Vehicle (UAV) algorithm that maps image points to actual geolocation coordinates
- Generated test datasets to verify correctness of the developed algorithm with commercial software as ground truth

TEACHING AND SERVICE

NATIONAL UNIVERSITY OF SINGAPORE Singapore
Teaching Assistant — CS1101S, CS1231, CS2020, CS3230, CS4344, GET1031 Aug 2012 – May 2016

- Collaborated with over 8 faculty members on refining teaching materials and pedagogies to suit student needs
- Led discussion groups for a total of 86 students across 6 different courses on topics including programming methodology, computational thinking, data structures and algorithms, design and analysis of algorithms, and discrete structures
- Averaged a feedback score of 4.7/5 across all tutored courses (faculty average: 4.16/5) with 15 nominations for Best Teaching

NATIONAL UNIVERSITY OF SINGAPORE Singapore
University Scholars Programme (USP) Mentor Aug 2012 – May 2016

- Helped first-year USP students navigate through a variety of academic requirements and placated their various concerns
- Set up a cohesive network for Computer Science students in the USP where juniors easily seek advice and mingle
- Met up regularly with juniors to ensure their well-being and connect them with appropriate seniors and/or faculty members

TEMASEK JUNIOR COLLEGE Singapore
Course Instructor Jan 2014 – May 2014

- Initiated a student outreach programme to encourage young students to explore the field of Computer Science
- Planned and conducted 11 sessions of enrichment courses that teaches computational thinking and problem-solving
- Concluded the course with 7 students expressing further interest in game development

ADDITIONAL INFORMATION

- *DSTA-DSO Scholarship*: Awarded in 2011
- *Languages/Technologies*: Java, C++, Python, Javascript, MiniZinc, C, C#, Scheme (Basic), Prolog (Basic)
- *Computer Science UROP*: Worked on a reductionist approach to computer vision with applications in robot grasping with uncertainty
- *RoCoCo*: Used constraint programming to design a web-based round robin tournament scheduling algorithm
- *Poker AI Bot*: Implemented a 2 Player Limit Texas Holdem Poker bot using Monte Carlo Tree Search techniques
- *Robust Airport Scheduling*: Devised and analysed algorithms for airport gate scheduling. Solution was robust enough to minimise collisions when random delays were introduced to perturb a dataset of actual departure and arrival times