Sam SPEKREIJSE

PERSONAL DATA

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WORK EXPERIENCE

JUL 2017-*Present* | Teaching Assistant at THE UNIVERSITY OF CANTERBURY, Christchurch
Tutelage, Marking and Administration

Teaching assistant and course developer for a 200-level C programming course. Teaching assistant for 300/400-level embedded systems/signal processing courses, a 400-level probabilistic robotics course, and a 300-level operating systems course. This involves explaining concepts to students in lab sessions, guest lecturing to groups of ›30 students, exam marking, test invigilation, and planning/writing/recording course material.

MAR 2019-AUG 2019 | Research Assistant at THE UNIVERSITY OF CANTERBURY, Christchurch
Photogrammetry, Object Detection, Mobile Robotics

Developed software for a proof-of-concept forestry robot to identify trees and navigate to an optimum position for clearing. Approaches investigated include photogrammetry for 3D map reconstruction and neural network based object detection.

NOV 2018-FEB 2019 | Research Scholar at THE UNIVERSITY OF CANTERBURY, Christchurch
Embedded C Development, Embedded Hardware Development

Developed a controller/converter device that parses a custom serial protocol and controls an optical telescope's tip-tilt mirror.

JAN-FEB 2018 | Engineering Contractor at SYFT TECHNOLOGIES LTD, Christchurch
Embedded C Development

Developed drivers for I^2C sensor daughter boards and closed-loop controlled heating units. Also created a data-passing API for use with CANBUS across all production boards.

NOV 2016-FEB 2017 | Engineering Intern at AUCOM ELECTRONICS LTD, Christchurch
Embedded C Development

Integrated new SPI current-sensing instrumentation, and wrote the signal analysis code for the new input. Also worked on interpreting magnetometer readings for preventative maintenance.

NOV 2015-FEB 2016 | Engineering Intern at SYFT TECHNOLOGIES LTD, Christchurch
Java Development, Embedded C Development

In Java, developed an experimental framework of data analysis algorithms for use in end-user software, now released. Also designed a fully automated component test jig that ensured the unit under test met specifications.

NOV 2014-FEB 2015 | Administration Assistant at TRANSPOWER NEW ZEALAND LTD, Wellington
General Administration, Dispatching

Helped maintain the national grid asset records, and allocated contractors to job requests.

EDUCATION

2019-*Present* | **The University of Canterbury**, in progress
PhD in ELECTRICAL & ELECTRONIC ENGINEERING
Thesis Topic: **Mobile Robot Localisation on Complex Geometries**
Ongoing

2014-2019 | **The University of Canterbury**, GPA: 8.44/9.00
Bachelor of Engineering (Hons) in ELECTRICAL & ELECTRONIC ENGINEERING
Honours Project: **A low-cost, LIDAR-based, SLAM-implementing autonomous rover**
EPCA Top Achiever Award (**final year 1st in class**)
Bachelor of Science in PHYSICS & COMPUTER SCIENCE
Focus on low-level/structured C programming, simulations, and robotics

Technical Proficiencies

Programming Languages	Proficient with **C**, for both user application and embedded contexts Proficient with **Python**, for both scripting and scaled software Some experience With **C++**, **Java**, and **MATLAB**

Embedded Systems	Microcontroller Architectures
	    ARM, **PIC**, **AVR**
	Protocol design using standard interfaces (both via APIs and bitbashing)
	    UART/USART, **SPI**, **I²C**, **CANBUS**

Parallel Programming	Proficient writing parallelised C programs for desktop and clusters **pthreads**, **OpenMP**, **MPI**
Data Analysis	Statistical analysis, modelling and simulation **Python** with **scipy** and **numpy**
Computer Literacy	Operating Systems: **Linux**, **Windows** Automation: **make**, **bash**. **cmd** on Windows Networking: Direct **POSIX** hooks in C and Python, **nanomsg** Presentation: LaTeX, Microsoft Office with **VBA** Version Control: **Git**

Miscellaneous	First Aid: Red Cross first aid certificate
	    Additional specific courses on electrical first aid
	Scouts NZ Cooksey leadership course
	    Group dynamics, personality type applications and limitations, conflict diffusion

Memberships and Positions Held

2016-*Present*	Member, *IEEE*
2014-*Present*	Member, *Engineering New Zealand*
2021-*Present*	Quartermaster, *Canterbury Historical Fencing Club*
2018-2023	President, *University of Canterbury Mediæval & Renaissance Society*
2019-2020	Vice President, *University of Canterbury Computer Society*
2017-2018	Academic Coordinator, *University of Canterbury Computer Society*
2017	Promotions Manager, *University of Canterbury IET Branch*
2012-2013	Chairman, *Scouts NZ Lower North Island Venturer Council*

Recreational Activities and Interests

2015-*Present*	Historical European martial arts
	    German longsword & messer, Scottish & English broadsword, Hutton sabre
	    Canterbury Historical Fencing Club Instructor
	    Multiple national seminars given

2015-2022	Wudan kung fu
2010-2022	Canoe polo *2013 Wellington U18 representative squad member*
2003-2014	Ryukyu kempo karate **3rd degree black belt**
Intermittent	Surf kayaking Metalwork *Armoury, jewellery, knifemaking*