

Sam SPEKREIJSE

PERSONAL DATA

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WORK EXPERIENCE

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| JUL 2017-Present | Teaching Assistant at THE UNIVERSITY OF CANTERBURY, Christchurch
<i>Tutelage, Marking and Administration</i>
Teaching assistant for a 200-level C programming course, 300/400-level embedded systems/signal processing courses, and a 400-level probabilistic robotics course. This involves explaining concepts to students in lab sessions, lecturing small groups, exam marking, and test invigilation. |
| MAR 2019-AUG 2019 | Research Assistant at THE UNIVERSITY OF CANTERBURY, Christchurch
<i>Photogrammetry, Object Detection, Mobile Robotics</i>
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
<i>Embedded C Development, Embedded Hardware Development</i>
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
<i>Embedded C Development</i>
Developed drivers for I ² C 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
<i>Embedded C Development</i>
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
<i>Java Development, Embedded C Development</i>
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
<i>General Administration, Dispatching</i>
Helped maintain the national grid asset records, and allocated contractors to job requests. |

EDUCATION

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| 2019-Present | The University of Canterbury, in progress
PhD in ELECTRICAL & ELECTRONIC ENGINEERING
<i>Thesis Topic: Mobile Robot Localisation on Complex Geometries</i>
<i>Ongoing</i> |
| 2014-2019 | The University of Canterbury, GPA: 8.44/9.00
Bachelor of Engineering (Hons) in ELECTRICAL & ELECTRONIC ENGINEERING
<i>Honours Project: A low-cost, LIDAR-based, SLAM-implementing autonomous rover</i>
EPCA Top Achiever Award (final year 1 st in class)
Bachelor of Science in PHYSICS & COMPUTER SCIENCE
Focus on low-level/structured C programming, simulations, and robotics |

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	Experienced writing threaded C programs pthread , OpenMP Some experience writing multi-process C programs POSIX, 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, <i>IEEE</i>
2014-Present	Member, <i>Engineering New Zealand</i>
2021-Present	Quartermaster, <i>Canterbury Historical Fencing Club</i>
2018-Present	President, <i>University of Canterbury Mediæval & Renaissance Society</i>
2019-2020	Vice President, <i>University of Canterbury Computer Society</i>
2017-2018	Academic Coordinator, <i>University of Canterbury Computer Society</i>
2017	Promotions Manager, <i>University of Canterbury IET Branch</i>
2012-2013	Chairman, <i>Scouts NZ Lower North Island Venturer Council</i>

RECREATIONAL ACTIVITIES AND INTERESTS

2015-Present	Historical European martial arts <i>German longsword & messer, Scottish & English broadsword, Hutton sabre</i> <i>CHFC Instructor</i>
2015-Present	Wudan kung fu
2010-Present	Canoe polo <i>2013 Wellington U18 representative squad member</i>
2003-2014	Ryukyu kempo karate 3rd degree black belt
Intermittent	Poetry 2012 NZ Secondary Schools finalist Surf kayaking Metalwork <i>Armoury, jewellery, knifemaking</i>