# Sam Spekreijse

## Personal Data

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| EMAIL: | speksam@gmail.com |
| ADDRESS: | 31A Kirkwood Ave, Upper Riccarton, Christchurch |
| PHONE: | +64 27 726 7735 |
| COURSE OF STUDY: | PhD in Electrical & Electronic Engineering |
| | Bachelor of Engineering in Electrical & Electronic Engineering |
| | Bachelor of Science in Physics & Computer Science |

## Work Experience

**Jul 2017-*Present*** | Teaching Assistant at The University of Canterbury, Christchurch
*Tutelage, Marking and Administration*

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
*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

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| 2019-*Present* | **The University of Canterbury**, in progress<br>PhD in Electrical & Electronic Engineering<br>　*Thesis Topic:* **Mobile Robot Localisation on Complex Geometries**<br>　*Ongoing* |
| 2014-2019 | **The University of Canterbury**, GPA: 8.44/9.00<br>Bachelor of Engineering (Hons) in Electrical & Electronic Engineering<br>　*Honours Project:* **A low-cost, LIDAR-based, SLAM-implementing autonomous rover**<br>　EPCA Top Achiever Award (**final year 1st in class**)<br>Bachelor of Science in Physics & Computer Science<br>　Focus on low-level/structured C programming, simulations, and robotics |
| 2009-2013 | **Wellington College**<br>Headmaster's Award for exemplary service |

## Proficiencies

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| Programming Languages | Well-versed in **C**, both for Linux and embedded contexts<br>Proficient with **Python**<br>Some experience With **C++**, **Java**, and **MATLAB** |
| Parallel Programming | Experienced writing threaded C programs<br>　**pthreads**, **OpenMP**<br>Some experience writing multi-process C programs<br>　**POSIX**, **MPI** |
| Data Analysis | Nonlinear model fitting and parameter computation in<br>**Python** with **scipy** and **numpy** |
| Embedded Systems | Microcontroller Architectures<br>　**ARM**, **PIC**, **AVR**<br>Protocol design using standard interfaces (both via APIs and bitbashing)<br>　**UART/USART**, **SPI**, **I²C**, **CANBUS** |
| Computer Literacy | Operating Systems: **Windows** and **Linux**, with **cmd** and **bash**<br>Presentation: **LaTeX**, **Word**, **Powerpoint**, and **Excel** with **VBA**<br>Version Control: **Git** |
| Miscellaneous | Red Cross first aid certificate<br>Scouts NZ Cooksey leadership course |

## Memberships and Positions Held

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| 2016-*Present* | Member, *IEEE* |
| 2014-*Present* | Member, *Engineering New Zealand* |
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| 2018-*Present* | President, *University of Canterbury Mediæval & Renaissance Society* |
| 2019-*Present* | 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

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