Ro-ee Tal

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EDUCATION

UNIVERSITY OF BRITISH COLUMBIA

2021 | Vancouver, BC

- Engineering Physics
- Dean's Honor List
- International Community Achievement Award
- Outstanding International Student Award

KING DAVID HIGH SCHOOL LINKSFIELD

2015 | Johannesburg, South Africa

- Valedictorian
- Top 1% of National Graduates

SKILLS

PROGRAMMING

Languages

- Python • Matlab + Simulink • Java • C • Swift

Tools

- Tensorflow • Git • Gradle • Docker • JUnit • Travis CI

CAD

- Solidworks • OnShape • Maya • Autodesk Eagle

PHYSICS

- Scanning Electron Microscope
- Electron-beam lithography
- Thermal evaporation

PROJECTS

CRISPY

Present | Vancouver, Canada

A private quant fund.

EDUHACKS

2017 | Vancouver, Canada

A NLP tool designed to help children with their comprehension.

APARTMENT BOT

2016 | Vancouver, Canada

A bot that alerts you about new apartment listings.

POCKET WALLET

2013 | Johannesburg, South Africa

A money tracking IOS app that helps you be more responsible with your allowance.

EXPERIENCE

UBC SAILBOT | Software Developer

Jan 2018 - Present | Vancouver, BC

- We are currently in the process of building an autonomous sailboat to take on the Vic-Maui Yacht Race.
- Developed the dynamics control block for simulating the rudder.
- Currently developing the controller, which will adapt and improve the simulation model as the boat sails to keep the boat on its heading.

QUANTUM DEVICES GROUP | Research Assistant

Jan 2018 - Apr 2018 | Vancouver, BC

- Measured nanowire devices as part of underlying research geared towards developing Majorana qubits .
- Analyzed data to characterize the behavior of the nanowire devices and explored how peculiarities in the behavior can be accounted for in their fabrication process.
- Explored fabrication techniques to improve the proximity effect of Aluminum superconducting contacts in InAs nanowire devices, so the wires can be more precisely controlled. With precision high enough to be able to configure Majorana Zero Modes in the wires, we can use these wires as the building blocks for Majorana qubits.
- Improved the labs data acquisition software to include asynchronous device communication for faster and more efficient measurements.
- Built the new heating system for the cryostat with which I was measuring.

UBC ORBIT | Command and Data Handling Team Lead

Sep 2016 - Sep 2017 | Vancouver, BC

- We built a cube satellite with on-board AI capabilities for the purpose of analyzing global vegetation health.
- My sub-team focused on designing the communication system of the satellite, which we call Trillium. Trillium is a low-cost radiation-hardened processing system that prevents communication failure due to radiation hazards in space. We developed it using STM32 MCUs. (See publications).

QUANTUM DEVICES GROUP | Research Assistant

May 2017 - Aug 2017 | Vancouver, BC

- Developed a functioning prototype of a low-cost lock-in amplifier, an instrument which removes noise from sensitive signals.
- Built upon existing code to create the controller responsible for sampling and processing the signal very quickly.
- Created a versatile communication interface on a Raspberry Pi : fast enough to communicate with the signal-processing controller and simple enough to integrate with the lab's server and data acquisition setup.
- Designed the internal circuitry of the device which merges the signal-processing controller and communication interface together, while providing low-noise signal manipulation, buffering and amplification.
- Used 3D CAD software for the industrial design of the device.
- The device processes the signals and filters them fast enough to prevent digitization and provide an output signal with 17 bit precision, 1 bit more than the industry standard.

PUBLICATIONS

Duplicated Voting Processors for the...

LINKS

GitHub | LinkedIn | roeetal.com