Jerin Roberts

Curriculum Vitae

Education

Expected-April,2015 **Bachelors of Science**, *Thompson Rivers University*, Kamloops, *GPA – 3.6*.
Major Physics

Experience

Fall 2014 –Present **Undergraduate Research Assistant**, TRIUMF, Vancouver, BC.
Aiding in the development of the M9 Prototype Muon Spectrometer
Detailed achievements:
- Designing Experimental Apparatus Equipment using Solidworks for SiPM tests
- Characterizing and Analyzing SiPMs for final selection
- Designed Positron Timing Simulation (C++/ROOT)
- Designed scripts for Pulse Detection and Characterization from SiPM's (C++/ROOT)

Summer 2014 **Undergraduate Research Assistant**, SNOLAB, Sudbury, Ontario.
Fixed the umbilical retrieval mechanism (URM) for SNO+ experiment key for lowering sources into the detector.
Detailed achievements:
- Assisted PMT assembly in class 2000 and 5000 underground clean labs
- Designed and implemented chain drive system vastly improving performance
- Re-Designed/fabricated Pulley Wheels using FreeCAD/3D printer
- FEM analysis using Z88 Aurora to verify pulley integrity

2012–Present **Laboratory Instructor**, Thompson Rivers University, Kamloops, BC.
Taught 1st year Physics Labs
Detailed achievements:
- Preparing and Presenting Lectures for Laboratory Course
- Instructing students on how to perform experiments
- Working quickly to provide valuable solutions for student questions
- Marking and grading assignments and exams

Computer skills

Languages C/C++, LaTeX, Assembly, Java

OS/Programs Ubuntu 14.04, Scientific Linux, Microsoft Windows, ROOT, R, FreeCAD, Solidworks, Eagle CAD, Texmaker, Labview, Z88Aurora

Devices Arduino, Altera FPGA, Raspberry pi, Newport Stepper Motors/Drivers, Tektronix (tekVISA), PICkit 2

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Awards

2013 Undergraduate Research Experience Award Program (UREAP)

Volunteer Work

2010-Present Physics Help Center hosted by Phi-6 Club (current member)

2012-2014 Physics Magic Show Presentation

2012-2013 Open House Science Night Presenter

Hobbies and Interests

- RC Helicopters/Aircraft
- DH Biking
- Model Rocketry
- Flight Simulation

References

Dr. Syd Kreitzman, TRIUMF, Research Scientist MuSR.
syd@triumf.ca
604-222-7303

Dr. Christine Kraus, SNOLAB, Canadian Research Chair in Particle Astrophysics.
tine@snolab.ca
705-561-8413

Dr. Mark Paetkau, TRU, Professor Physical Sciences.
mpaetkau@tru.ca
250-828-5453

Office of Admissions
University of Victoria
3800 Finnerty Road
V8P 5C2 Victoria, B.C.

February 10, 2015

Dear Sir or Madam,

My goal is to become a student within the University of Victoria, while learning and gaining experience for my future dreams of pursuing a career in Aerospace Engineering. My educational background and research experience will allow me to become a valued member of your institution.

During Fall 2014, I was involved in the development of the M9 prototype muon spectrometer currently being designed and built at TRIUMF. Under the supervision of Dr. Syd Kreitzman, I designed universal equipment used for testing specific experimental components, which involved generating professional models and drawings using Solidworks. I also designed a sophisticated simulation in C++/ROOT used to help determine the resolution of the new spectrometer given different geometrical configurations for scintillation pieces. In addition I wrote scripts to detect and characterize pulses during SiPM characterization phases in C++/ROOT. My work at TRIUMF has enabled me to refine my engineering and programming abilities which will be an asset for my future career goals.

In the Summer of 2014 I worked at SNOLAB under the supervision of Dr. Christine Kraus on the SNO+ experiment. During my term I spent a great deal of time engineering mechanical systems for the project. Specifically I cleverly fixed the slippage issues plaguing the umbilical retrieval mechanisms, a device responsible for lowering radioactive sources into the multi-million dollar detector. In addition to redesigning high-traction pulleys, I also designed and fabricated a chain-drive system which successfully met budget, space and radioactivity requirements. My time with SNOLAB has given me great technical experience that I believe combined with my mechanical intuitiveness and knowledge of physics will aid me during my professional development and advancement within engineering.

For a directed studies project at Thompson Rivers University I designed and professionally constructed operational sensors for a high altitude balloon using a LPKF circuit milling machine and Eagle CAD drafting software. The circuits included a transmitter/receiver interface, GPS telemetry APRS transmitter, a cosmic radiation detector, accelerometer and atmospheric sensors all designed as Arduino shields. The Project required a great deal of electronic design and debugging. Thompson Rivers University has given me hands-on experience which coupled with my analytical and strategic nature will be invaluable towards my professional career

I hope to hear from you soon to discuss how I can become a valued member of your institution. I look forward to starting my Engineering career, as well as pursuing opportunities for professional development and advancement within University of Victoria. Thank you for your kind consideration of my qualifications.

Sincerely yours,

Jerin Roberts

Attached: curriculum vitæ

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