Jerin Roberts

Curriculum Vitae

Education

April, 2015 **Bachelors of Science**, *Thompson Rivers University*, *GPA – 3.56/4.33.*
Major Physics

Experience

Fall 2015 **Undergraduate Research Assistant**, TRIUMF, Vancouver, BC.
M9 Prototype Muon Spectrometer Project
Detailed achievements:
- Designed and constructed Experimental Spectrometer for Silicon Photomultiplier (SiPM) and DAQ testing on beam-line.
- Designed Linux based Simulation (C/C++) to determine theoretical spectrometer resolution with openGL visualization and ROOT analysis.
- Setup and Conducted experimental tests of spectrometer DAQ using VME hardware and Midas software.

Summer 2014 **Undergraduate Research Assistant**, SNOLAB, Sudbury, Ontario.
SNO+ Experiment: Umbilical Retrieval Mechanism (URM) Project
Detailed achievements:
- Designed and implemented chain drive system on URM vastly improving performance
- Re-Designed/fabricated Pulley Wheels using AutoCAD/3D printer
- FEM analysis to verify pulley integrity
- Assisted PMT assembly on SNO+ in class 2000 and 5000 underground clean labs

Summer 2013 **Undergraduate Research Assistant**, Thompson Rivers University, Kamloops, BC.
Bluebird tracking using RFID technology.
Detailed achievements:
- Designed housings for electronics/feeders optimized for 3D-printing
- Designed/Fabricated RFID circuit boards using EagleCAD software
- Wrote software for Interfacing sensors with Raspberry Pi and Arduino platforms.
- RFID Antenna tuning and construction.

2010-2013 **Senior Bicycle Mechanic**, Spoke n Motion, Kamloops, BC.
Lead Bicycle Mechanic Specializing in Suspension Rebuilds.
Detailed achievements:
- Rebuilt High Performance Suspension Forks and Shocks (Fox,Rockshox,Manitou...)
- Delicate Assembly of Expensive Carbon Components.
- Assembly and Service of High Performance Downhill Mountain and Road Bicycles.
- Leading and Working as part of a Mechanical Team.

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Computer skills

Languages/ Libraries	C/C++, Java, LaTeX, Assembly, OpenGL, OpenCV, ROOT, Midas
OS/Programs	Ubuntu 14, Bash, Github, Windows 7/8/10, Solidworks, AutoCAD, FreeCAD, Eagle CAD, ROOT, R, MIDAS, Labview, Z88Aurora
Devices	VME ADC/TDC, Arduino, Altera FPGA, Raspberry pi, Newport Stepper Motors/Drivers, Tektronix (tekVISA)

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

- DownHill Biking
- RC Helicopters/Aircraft
- Flight Simulation
- High Altitude Ballooning
- Model Rocketry
- Programming

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

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March 11, 2016

Dear Director of Human Resources,

I am writing to apply for the Lead Production Technician position offered at TRIUMF. I welcome the opportunity to bring my mechanical and engineering skills to the TRIUMF team. As you can see from my attached resume, I developed my fabrication and engineering skills through several research and co-op positions.

During summer and fall 2015, 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 and constructed a mock muon spectrometer used for testing prototype sensors and DAQ electronics. This work required producing professional 3D models and drawings in Solidworks for both the on-site machine shop and 3D printer. 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 solutions to correct the slippage issues plaguing the umbilical retrieval mechanisms, a device responsible for lowering radioactive sources into the multi-million dollar detector. In addition to designing 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 career.

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

Based on my understanding of the job responsibilities listed my salary expectations would fall in the range of $30,000 to $50,000. I hope to hear from you soon to discuss how I can become a valued member of your organization. I look forward to starting my career, as well as pursuing opportunities for professional development and advancement within TRIUMF. Thank you for your kind consideration of my qualifications.

Sincerely yours,

Jerin Roberts