Burke Brockelbank

Résumé

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Education

BSc Physics with Honors, First Class, *University of Calgary*, Calgary, Alberta, GPA: 3.9. **2013–2017**

Graduated April 2017.

Thesis: *Maximally entangled multipartite symmetric states*

Supervised by Gilad Gour. Characterization of maximal entanglement in pure multipartite qubit states with symmetry under exchange of qubits.

Classes: *Special classes taken during BSc*

- Solid state physics
- Introduction to Optimization
- Introduction to Nanoscience and Nanotechnology

Work Experience

Research Assistant, *Nasser Moazzen-Ahmadi*, Calgary, University of Calgary. **2017-2018**

Investigating the feasibility of upgrading of bitumen with lasers.
In this contract I was the primary researcher in charge of designing, buidling, and implementing the experimental apparatus, as well as determining the best methods for experimentation. This also included detailed log keeping and regular progress reports and presentations.

Summer Researcher, *Nasser Moazzen-Ahmadi*, Calgary, University of Calgary. **2015–2017**

Study of infrared (IR) rovibrational spectroscopy of molecular clusters.
Molecular clusters were formed in vacuum with a supersonic slit-jet. Clusters were probed with a continuous wave laser (QCL and OPO) scanned at high resolution to obtain rotational spectra.
Primary responsibilities were system mantenance, automation, data calibration, and ordering parts.

- PHAS symposium 2017
- Publication of "Three new infrared bands of the He-OCS complex" 2017
- Undergraduate research night poster presentation 2016
- Quantum Alberta Workshop poster presentation 2016
- Safety inspection 2016

Other Projects

Machine learning: Machine learning with neural nets has been a hobby of mine for some time now. I am working on passion project where a user-defined AI is used to supervise a neural net to to train a prior which is refined with Deep-Q learning.

Skills

Soft skills: Experimental design, record-keeping, scientific communication

Lab skills: Pressurized gas, high vacuum, low vacuum, lasers, optics, cryogenics, Automation, Electronics, spectroscopy, gas chromatography (GC), mass spectrometry (MS), GCMS, nuclear magnetic resonance (NMR)

Programming: In order of familiarity: Python (Scipy, Numpy, Pytorch), LabVIEW, Fortran 77 and 90, Matlab, SQL, shell and batch scripts, makefile

Other computer: Machine learning, Git, network setup and maintenance, vitual machines (VMware, VirtualBox)

Word Processing: Proficient with LaTeX as well as WYSWIG editors such as MS Word

Spreadsheets: Translatable experience with data analysis

OS: Experience on Windows and Linux, as well as Mac OS.