Alex Sylvester

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EDUCATION

University of British Columbia **2015 – 2017**
Master of Applied Science (Mechanical Engineering – Fluid Modelling) *Vancouver, BC*

- GSI Entrance Scholarship, NSERC Graduate Research Scholarship, Academic Achievement Award, 4.0/4.0 GPA

McGill University **2010 – 2013**
Bachelor of Science (Honours Math and Physics) *Montreal, QC*

- First class honours with distinction, NSERC USRA research award, 3.9/4.0 GPA

DATA SCIENCE PROJECTS

- **Neural Network Generation of Arctic Sea Ice Charts**: Used published charts from the Canadian Ice Service to train a convolutional neural network to generate visual sea ice concentration maps from satellite imagery. Built a prototype web application on AWS to demonstrate the model.
  http://ec2-3-12-161-143.us-east-2.compute.amazonaws.com/
- **Craigslist Vehicle Listings in British Columbia**: Scraped Craigslist data to study the factors affecting vehicle pricing in BC. Also developed a live gradient boosting model to predict the market value of any Craigslist posting.
  https://github.com/asylve/Craiglist-Cars-Study

SKILLS

- **Languages**: Python, C, SQL
- **Libraries**: matplotlib, pandas, numpy, scikit-learn, keras
- Regression, classification, computer vision, NLP
- Amazon Web Services, Linux
- Mathematical modeling and statistics
- Multidisciplinary research and product development

WORK EXPERIENCE

NORAM Engineering **2017 – Present**
Project Engineer – Electrochemical Group *Vancouver, BC*

- Exposed to Neural Network optimization of chemical plants through NORAM's Lead Data Scientist
- Ran a research study for a novel sodium carbonate electrolyser. Analyzed performance data to produce clear insights for the project business team, leading to the electrolyser being selected as the primary piece of equipment for a major project.
- Project manager for the design/build of two lithium salt splitting pilot plants for long term process data collection.
- Primary mechanical engineer for three successful electrolysis design/build projects: A retrofit of upgraded electrolysers in an operating lithium production plant, a complete plant to recover value-added chemicals from wastewater, and a complete plant for recovering liquid sodium from heavy oil.

University of British Columbia (with CORE Energy Recovery) **2015 – 2017**
Master's Graduate Research *Vancouver, BC*

- Developed custom algorithms in C to accurately predict moisture transport in heat/humidity exchangers. Used these algorithms to model, visualize, and quantity many potential performance-enhancing fluid flow geometries.
- Experimentally validated the model's predictions with new data and a historical testing database. Real-world performance was a 10% boost compared to the commercial design.

CORE Energy Recovery **08/2016 – 11/2016**
R&D Intern *Vancouver, BC*

- Designed, programmed, and commissioned two experimental test stands for automotive fuel cell humidifiers. Both systems are currently in operation collecting long-term performance data.

Logic Supply Inc. **2014 – 2015**
Technical Support *Burlington VT, USA*

- Diagnosed faulty systems in the embedded industrial PC market.
- Distilled and communicated complex hardware and software issues to both technical and non-technical customers.

INTERESTS

- Skiing, Rock Climbing, Mountaineering, Investing, Home Brewing