

Alex Sylvester, M.A.Sc.

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EDUCATION

University of British Columbia

Master of Applied Science (Mechanical Engineering – Fluid Modelling)

2015 – 2017

Vancouver, BC

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

McGill University

Bachelor of Science (Honours Math and Physics)

2010 – 2013

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:** Collected and analyzed radar satellite imagery in the arctic with associated ice charts from the Canadian Ice Service. Trained a deep neural network to generate new ice charts at any point on the globe in near-real time. 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:** Collected and analyzed Craigslist data to study the factors affecting vehicle pricing in BC. Documented findings and visualizations in Jupyter notebooks. Developed a [live](#) random forest model to predict the market value of any Craigslist posting. <https://github.com/asylve/Craigslist-Cars-Study>
- **Contributor to the eo-learn machine learning library:** <https://github.com/sentinel-hub/eo-learn/pull/312>

SKILLS

- **Languages:** Python 3, C, SQL, HTML, JavaScript
- **Libraries:** TensorFlow, Sklearn, NumPy, SciPy
- **Systems:** AWS, Linux, Git
- Regression, classification, clustering, hypothesis testing
- Computer vision, NLP, statistics, linear algebra
- Industrial and academic research, technical reporting

WORK EXPERIENCE

NORAM Engineering

Mechanical Engineer – Electrochemical Group

2017 – Present

Vancouver, BC

- Exposed to Neural Network optimization of chemical plants through NORAM's Lead Data Scientist
- R&D management, data analysis, and reporting on prototype electrolyser designs for business development (sodium carbonate, sodium sulphate, lithium sulphate, and elemental sodium)
- Managed the design and build of two lithium salt splitting pilot plants for process data collection in the mining industry.
- Primary mechanical engineer for three successful electrolysis design/build projects

University of British Columbia (with CORE Energy Recovery)

Master's Graduate Research

2015 – 2017

Vancouver, BC

- Developed custom algorithms in C to accurately predict moisture transport heat exchangers. Used these algorithms to model, visualize, and quantify 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

R&D Intern

08/2016 – 11/2016

Vancouver, BC

- Designed, programmed (LabView), 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.

Technical Support

2014 – 2015

Burlington VT, USA

- This was a customer facing role where I 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