Justin Furlotte

Data Scientist - MSc Mathematics

Data Scientist in the food & beverage industry looking to take on new challenges. Expertise in time series forecasting, machine learning, and scientific computing. Formerly researched mathematical physics in the Institute of Applied Mathematics at the University of British Columbia.

justin.furlotte@gmail.com | (506) 304-7625 | Moncton | justin-furlotte.github.io

RECENT WORK EXPERIENCE

Jr. Data Scientist
Fiddlehead Technology

07/2022 - Present — *Moncton, NB, Canada*

Achievements/Tasks

- Project lead on point of sale (POS) time series forecasting for hundreds of SKUs across Australia & New Zealand for a major client.
- Spearheaded an NLP project to analyze sentiment and time series data for food label claims in media. Summarized technical results in a large report for the Canadian Food Innovation Network.
- Owner of internal time series forecasting python package.

Head Teaching Assistant
University of British Columbia - Mathematics Dept.

09/2020 - 04/2022 — *Vancouver, BC, Canada*

MATH 110 (Introduction to Differential Calculus); MATH 307 (Applied Linear Algebra)

Achievements/Tasks

- Leader of all TAs for UBC's Differential Calculus course.
- Created teaching plans, problem sets, and solutions for all other TAs.
- High reviews from student evaluation surveys for ability to explain complex mathematical concepts in simple language.

R&D Scientist
C-Therm Technologies

06/2017 - 08/2020 — *Fredericton, NB, Canada*

Achievements/Tasks

- Designed and implemented machine learning/regression algorithms in Python to extract thermal material properties from experimental curves.
- Project lead for the creation of the "Flex TPS" regression algorithm, now one of C-Therm's core products, which retails for $9,100.
- Performed computational physics research on cutting-edge "thin film" thermal technologies, resulting in a publication.

EDUCATION

MSc - Mathematics
University of British Columbia

09/2020 - 09/2022 — *GPA: 88%*

Awards

- NSERC Canada Graduate Scholarship - Master's (CGS-M).
- Faculty of Graduate Studies Award (x2).

BSc (Honours) - Mathematics-Physics
University of New Brunswick

09/2015 - 12/2019 — *GPA: 4.0*

Awards (others available upon request)

- The Arthur and Sandra Irving Primrose Scholarship (2015-2019).
- NSERC Experience Award (2018).

SKILLS

Machine Learning | Azure ML | Python | PyTorch | Scikit-Learn | Pandas | Julia | MATLAB | SQL | LaTeX | APIs | Git | Leadership

PROJECTS & PUBLICATIONS

Geophysical Inversion with Deep Neural Networks
- Variational autoencoder in PyTorch, combined with UBC geophysics lab's inversion software, to model subsurface density.

Variational Autoencoder Lecture
- Sample lecture & assignment created for UBC's CPSC 540 (Advanced Machine Learning) course.

Ensemble ML xG Model
- Created an expected goals (xG) model to detect outlier goal scoring seasons of NHL players.
- Significant preprocessing of data from moneypuck.com.
- Created Plotly/Dash dashboard app, deployed with Heroku.

Master's Thesis - The Quantum Hall Effect
- Proving bulk-edge correspondence in interacting lattice systems.
- Uses mathematical tools such as functional analysis, spectral theory, and operator algebras.

Vector-Quantized Naïve Bayes
- Full from-scratch implementation in Julia.
- Modification of ordinary naïve Bayes which adds a latent variable using unsupervised classification.

Publication with C-Therm Technologies
- M. Emanuel, M. Bhouri, J. Furlotte, D. Groulx, J. Maassen: Temperature Fields Generated by a Circular Heat Source (CHS) in an Infinite Isotropic Medium: Treatment of Contact Resistances with Application to Thin Films, International Journal of Heat and Mass Transfer 137:677-689 (April 2019).

Other Projects & Where to View
- These projects and more can be browsed in greater detail on my personal website, https://justin-furlotte.github.io (linked above).