Alexandre Brilhante

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Education

Université de Montréal Montréal, QC, Canada
Bachelor of Science, Computer Science May 2018

École des sciences de la gestion (ESG UQAM) Montréal, QC, Canada
Bachelor of Business Administration, Finance 2012

Experience

Université de Montréal Montréal, QC, Canada
Research Assistant, Department of Computer Science and Operations Research 2017-2018

- Researched nonlinear stochastic programming methods for maximum likelihood estimation of large-scale multinomial mixed logit models.
- Implemented Newton, quasi-Newton using BFGS and SR1 Hessian approximations and trust regions methods in Julia.
- Proposed a novel approach based on stochastic gradient descent using the truncated conjugate gradient and benchmarked its estimation quality and convergence speed.

Montpak International Laval, QC, Canada
Logistics Clerk 2013, 2015-2016

- Automated pricing management of nearly 900 products.
- Improved inventory management of over 65,000 units with limited shelf life reducing warehouse costs by 60%.

Open Source

DiscreteChoice.jl

- Implemented numerical optimization methods in Julia for maximum likelihood estimation of logit and mixed logit models.

Options Pricing

- Developed pricing models for vanilla and exotic options in C++ using Black-Scholes, binomial trees and Monte Carlo methods.

Projects

Classifying Dementia in Parkinson's Disease

- Identified the best cognitive markers of dementia in Parkinson's disease in collaboration with a neuropsychologist and built a deep neural network model using TensorFlow to classify dementia cases with 83% accuracy.

Predicting Real Estate Price Fluctuations

- Consulted for a local startup to build an XGBoost model using feature engineering to predict real estate price fluctuations with 86% accuracy.

Independent Coursework

Financial Engineering and Risk Management, Columbia University 2018
Interest Rate Models, École polytechnique fédérale de Lausanne 2018

Skills

Programming: Julia, Python, R, C++, Java, JavaScript, MATLAB
Tools: pandas, Numpy/SciPy, scikit-learn, TensorFlow, SQL, Git
Languages: native French, fluent English

Activities

Co-Organizer, Montréal Julia Programming Language Meetup 2017-2018