

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
	<ul style="list-style-type: none">• 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
	<ul style="list-style-type: none">• 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	
	<ul style="list-style-type: none">• Implemented numerical optimization methods in Julia for maximum likelihood estimation of logit and mixed logit models.	
	Fixed Income	
	<ul style="list-style-type: none">• Developed a proof of concept for issuing fixed income securities on the Ethereum blockchain.	
	Options Pricing	
	<ul style="list-style-type: none">• Developed pricing models for vanilla and exotic options in C++ using Black-Scholes, binomial trees and Monte Carlo methods.	
Project	Classifying Dementia in Parkinson's Disease	
	<ul style="list-style-type: none">• 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.	
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: French (native), English (fluent)	
Activities	Co-Organizer, Montréal Julia Programming Language Meetup	2017-2018