Pavel **Motloch**

Senior Quantitative Analyst   Physics Ph.D.

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○ motloch | k motloch | ⬡ motloch1 | 🎓 Pavel Motloch

Work Experience

Senior Quantitative Analyst, Capital Markets Risk Management   *Toronto, ON, Canada*
CIBC   *since Mar. 2023*

- Counterparty credit risk. Specializing in IR models and pricing. Experience with other asset classes.
- Model development, parameter calibration, backtesting. Analyzing historical data, coding in Python and C#.

Quantitative Analyst, Capital Markets Risk Management   *Toronto, ON, Canada*
CIBC   *Sep. 2022 – Mar. 2023*

- Market risk. Model development testing for FRTB (IR and inflation).

Postdoctoral Fellow   *Toronto, ON, Canada*
University of Toronto   *Sep. 2018 – Sep. 2022*

- Independent researcher. Led ten astrophysics projects from inception to publication in a peer-reviewed journal.
- Supervised four students, organized a weekly journal club, gave an outreach talk for about 200 people.

Education

University of Chicago, Ph.D. in Physics   *Sep. 2012 – Aug. 2018*
University of Economics in Prague, B.Sc. in Finance   *Aug. 2009 – Aug. 2012*
Charles University in Prague, B.Sc. and M.Sc. in Physics   *Sep. 2007 – Sep. 2012*

Skills

Programming

Python, C#, Fortran. C/C++ in a more distant past. Data structures and algorithms. Linux, version control.

Problem-solving

Understand and model complex systems. Analytical approach to problems.

Quantitative finance

Derivatives pricing, model development, calibration and backtesting, risk management (market and credit).

Teamwork and leadership

Experience working in teams of 3-10 people of different backgrounds. Initiated and lead numerous projects, mentored junior team members.

Data science

Machine learning, statistics, SQL

Courses and Certifications

Deep Learning Specialization, Coursera, DeepLearning.AI
SQL for Data Science, Coursera, U. C. Davis
Algorithms Specialization, Coursera, Stanford U.
Machine Learning, Coursera, Stanford U.
Financial Eng. and Risk Mgmt. Sp., Coursera, Columbia U.

Initiation à la programmation (en C++), Coursera, ÉPFL
Financial Markets, Coursera, Yale U.
AWS Certified Cloud Practitioner, AWS
Django for Everybody Specializ., Coursera, U. Michigan

Hackerrank: Python (5*), **Problem Solving** (5*)

Selected Honors & Awards

For excellence:
Beatrice and Vincent Tremaine Fellowship, Univ. Toronto
Robert R. McCormick Fellowship, Univ. Chicago
Robert G. Sachs Fellowship, Univ. Chicago
McKinsey Scholarship

Other:
Physical Sciences Teaching Prize, Univ. Chicago
Gold, Silver and Bronze medal, Intl. Physics Olympiad
Elected to Faculty Senate, Charles Univ.

Publications

Sixteen peer-reviewed **first author** scientific publications (mostly Physical Review D), eight more as a contributing author. Highlights:

2020   **Nature Astronomy**, An observed correlation between galaxy spins and initial conditions
2020   **Physical Review Letters**, Probing primordial chirality with galaxy spins

Presentations

Twelve talks at conferences / seminars. Highlights:

2019	**Particle Physics Seminar**, Galaxy spins as probes of fundamental physics	*Harvard University*
2019	**CosmoGold Conference**, Tensions in CMB lensing	*Paris, France*
2018	**CMB in HD Conference**, On lensing-induced covariances	*Flatiron Institute, NY*
2017	**Kavli CMB Workshop**, Lens sample variance and TEB power spectra	*Stanford University*

Kaggle Data Science competitions

Two competition bronze medals:

NBME - Score Clinical Patient Notes

- Finding features in medical notes (natural language processing). Trained and ensembled models starting from a DeBERTa backbone. Used pseudo labelling on a large corpus of unannotated medical notes.

BirdCLEF 2022

- Classifying bird species from audio recordings from a small labeled dataset. Calculated mel spectrograms and built a classifier of the resulting images (EfficientNet backbone).