

Dhruv Sharma, Ph.D.

Phone: + (33) 7 82 37 02 43 / +1 (720) 299-4639
Address: 3100 Pearl Parkway, Boulder, CO, USA
Nationality: French.

Email: dhruv.sharma@polytechnique.org
[LinkedIn](#)
[Website](#)

Work Experience

Head of Portfolio Intelligence, *Fabric Risk, Boulder, CO, USA.* 07/2022-Present

- ✦ Lead the development and maintenance of Fabric's modeling stack, utilizing MSCI Barra Risk models; enhance existing product features to capture insights beyond traditional risk metrics.
- ✦ Direct new product initiatives and collaborate with UI/UX teams:
 - Projects include Personalized Direct Indexing, Customized Portfolio Construction, and Climate risk metrics.
 - Introduced the Fabric Similarity score, transforming multi-dimensional factor risk assessments into a single metric.
- ✦ Voice of the client: Integrate client feedback to improve model and analytics development.
- ✦ Supervise research projects for Master of Financial Engineering (MFE) candidates at the Haas School of Business, UC Berkeley:
 - Topics include Dynamic Correlation matrix modeling and leveraging LLMs for personalized portfolio insights.

Model Research Scientist, *Fabric Risk, Boulder, CO, USA.* 05/2021-06/2022

- ✦ Validated use cases for a wealth management firm with 35B\$+ in AUM generating \$200K in revenue and representing 40% of company ARR.
- ✦ Developed a hybrid Factor and Agent-Based Model (Factor-ABM), offering precise risk assessment for scenario analysis and market stress-testing
- ✦ Devised and implemented a ML-based Taxonomy model, automating the classification of both public and private assets leveraging risk factor exposures.
- ✦ Formulated a risk allocation framework, emphasizing factor-based guided rebalancing strategies to manage portfolio risk, accounting for client-specific constraints and tax implications.

Education

Ph.D. in Statistical Physics *ENS, Paris and Chair of Econophysics, Ecole Polytechnique* 09/2017-11/2020

- ✦ Advisors: Dr. Francesco Zamponi & Dr. Jean-Philippe Bouchaud.
- ✦ Thesis Title: Macroeconomic Agent-Based Models: A Statistical Physics perspective.

Masters in Theoretical Physics, *Ecole Normale Supérieure (ENS), Paris* 08/2016-06/2017

Ingénieur Polytechnicien *École Polytechnique, Paris* 09/2013-06/2017

- ✦ Major in theoretical physics.
- ✦ Bourse de la Fondation de l'X, Scholarship to pursue studies at Ecole Polytechnique.

Bachelor of Science (Honors) Physics. *St. Stephen's College, Delhi* 07/2010-06/2013

- ✦ Top-ranked college in India (Rank 1 in 2013) with an acceptance rate of 1%

Publications

- # Dhruv Sharma, Richard Bookstaber “*Portfolio Construction and Rebalancing for Individuals*”, Investments and Wealth Monitor, March/April 2023. [Link to article](#)
- # Richard Bookstaber, [Dhruv Sharma](#) “*Managing Material Risk*”, CFA Research Foundation Briefs. [DOI](#)
- # [Dhruv Sharma](#), Jean-Philippe Bouchaud, Stanislao Gualdi, Marco Tarzia, Francesco Zamponi
“*V -, U -, L - or W-shaped recovery after COVID? Insights from an Agent Based Model*”, PLoS ONE 16(3): e0247823. [DOI](#), [arxiv](#)
- # [Dhruv Sharma](#), Jean-Philippe Bouchaud, Marco Tarzia, Francesco Zamponi
“*Good speciation and endogenous business cycles in a constraint satisfaction macroeconomic model*”, J. Stat. Mech (2021) 063403. [DOI](#), [arxiv](#)
- # [Dhruv Sharma](#), Jean-Philippe Bouchaud, Marco Tarzia, Francesco Zamponi
“*Self-planting: digging holes in rough landscapes*”, J. Stat. Mech, (2019) 123301. [DOI](#), [arxiv](#)

Other Experience

Scientific Outreach Specialist , <i>Cité des Sciences de l'Industrie, Paris.</i>	11/2017-08/2020
Graduate Student Representative , <i>Administrative Council, Ecole Normale Supérieure</i>	12/2017-12/2019
Superfluid Light in Hot Atomic Vapor. <i>Ecole Normale Supérieure, Paris.</i>	09/2017- 11/2020
<ul style="list-style-type: none"> # Characterized superfluid flow of light in nearly detuned Rubidium vapor. # Advisor: Dr. Quentin Glorieux, Quantum Optics Team at Laboratoire Kastler Brossel. # Received "<i>Felicitations de Jury</i>" for this work. 	
Software architect and developer, X-CubeSat. <i>Ecole Polytechnique, Palaiseau.</i>	08/2014- 08/2017
<ul style="list-style-type: none"> # Software architect and developer of the Attitude Control and Determination System. # X-CubeSat: Nanosatellite built under the QB50 initiative of the Von Karman Institute. # Satellite launched in May 2017 from the International Space Station. 	

Languages

With humans		With computers	
English	Native	General	Python, C++, Golang
French	Fluent	Numerical	NumPy, SciPy, Pandas.