Stefano Peluchetti

Location: Tokyo, Japan

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Experience

Research Scientist May 2024 — Present
Sakana AI *Tokyo, Japan*

Principal Research Scientist April 2016 — April 2024
Cogent Labs *Tokyo, Japan*
✧ Co-developed Tegaki, the company's initial OCR product
✧ Primary researcher and developer for the OCR components of SmartRead, the company's flagship product
✧ Established key metrics and a principled statistical framework for evaluating and comparing OCR models
✧ Created the initial version of a stock trading volume prediction model, now licensed to Daiwa Securities
✧ Led the technical developments related to large language models

Data Scientist October 2014 — March 2016
HSBC *London & Cambridge, UK*
✧ Created an efficient scenario analysis framework for sensitivity analysis of changes in the trade population
✧ Developed a stateless distributed computational framework
✧ Modeled the progression of HSBC projects

Independent Researcher September 2010 — March 2016
✧ Investigated a novel framework for optimal pricing and hedging of financial derivatives, leveraging high-frequency data and stochastic control
✧ Researched high-dimensional dynamic optimal portfolio allocation with transaction costs
✧ Developed multiple open source LuaJIT projects

Senior Quantitative Analyst September 2008 — December 2013
HSBC *London, UK*
✧ Validated option pricing and market risk models
✧ Analyzed competing option pricing and hedging strategies

Research Fellow in Statistics October 2007 — March 2008
University of Warwick *Coventry, UK*
✧ Researched exact Monte Carlo estimation of SDE functionals
✧ Researched exact simulation of multidimensional SDEs

Education

PhD in Statistics 2004 — 2008
Bocconi University *Milan, Italy*
Supervisor: Gareth O Roberts
Grade: pass with distinction
Courses: real analysis; probability; stochastic processes; frequentist, Bayesian and computational statistics; ...

MSc in Economics 1999 — 2003
Bocconi University *Milan, Italy*
Supervisor: Carlo A. Favero
Grade: 110/110 cum laude

Programming & Languages

Programming	Period	Main Libraries	Context
Mathematica	2022 — Present	—	research
Python	2016 — Present	NumPy, PyTorch, JAX	Cogent Labs and Sakana AI R&D, research
LuaJIT	2010 — 2016	SciLua	HSBC projects, research
C++	2006 — 2013	Boost, Eigen	HSBC pricing frameworks, research
HTML, CSS, JS	Occasionally	React, Tailwind, Bootstrap	Cogent Labs POCs, personal websites

Major Open Source Projects

scilua.org: SciLua is a high performance, general-purpose, scientific computing framework for LuaJIT
ulua.io: ULua is a cross-operating-system, cross-architecture, binary distribution for LuaJIT

All my repositories are hosted at github.com/stepelu.

Languages

English: full professional proficiency
Italian: native proficiency
Japanese: elementary proficiency

Research

2025 —

◆ Pezzetti L., Favaro, S., and Peluchetti, S.
Function-Space MCMC for Bayesian Wide Neural Networks.
International Conference on Artificial Intelligence and Statistics (AISTATS).

2024 —

◆ Peluchetti, S.
BM²: Coupled Schrödinger Bridge Matching.
Transactions on Machine Learning Research (TMLR).

◆ Favaro†, S., Fortini†, S., and Peluchetti†, S.
Large-Width Asymptotics and Training Dynamics of α-Stable ReLU Neural Networks.
Transactions on Machine Learning Research (TMLR).

◈ Pezzetti L., Favaro, S., and Peluchetti, S.
Preconditioned Crank-Nicolson Algorithms for Wide Bayesian Neural Networks.
Neural Information Processing Systems (NeurIPS) Workshop on Bayesian Decision-making and Uncertainty.

2023 —

◆ Peluchetti, S.
Diffusion Bridge Mixture Transports, Schrödinger Bridge Problems and Generative Modeling.
Journal of Machine Learning Research (JMLR).

◆ Dolera†, E., Favaro†, S., and Peluchetti†, S.
Learning-Augmented Count-Min Sketches via Bayesian Nonparametrics.
Journal of Machine Learning Research (JMLR).

◆ Favaro†, S., Fortini†, S., and Peluchetti†, S.
Deep Stable Neural Networks: Large-width Asymptotics and Convergence Rates.
Bernoulli.

2022 —

◆ Massaroli, S., Poli, M., Peluchetti, S., Park, J., Yamashita, A., and Asama, H.
Learning Stochastic Optimal Policies via Gradient Descent.
IEEE Control Systems Letters.

2021 —

◆ Peluchetti, S., and Favaro, S.
Doubly Infinite Residual Neural Networks: A Diffusion Process Approach.
Journal of Machine Learning Research (JMLR).

◆ Bracale†, D., Favaro†, S., Fortini†, S., and Peluchetti†, S.
Large-Width Functional Asymptotics for Deep Gaussian Neural Networks.
International Conference on Learning Representations (ICLR).

◆ Dolera†, E., Favaro†, S., and Peluchetti†, S.
A Bayesian Nonparametric Approach to Count-Min Sketch under Power-Law Data Streams.
International Conference on Artificial Intelligence and Statistics (AISTATS).

◈ Bracale†, D., Favaro†, S., Fortini†, S., and Peluchetti†, S.
Infinite-Channel Deep Stable Convolutional Neural Networks.
Neural Information Processing Systems (NeurIPS) Workshop on Bayesian Deep Learning.

◇ Peluchetti, S.
Non-Denoising Forward-Time Diffusions.
Unpublished.

2020 —

◆ Peluchetti, S., and Favaro, S.
Infinitely Deep Neural Networks as Diffusion Processes.
International Conference on Artificial Intelligence and Statistics (AISTATS).

◆ Peluchetti, S., Favaro, S., and Fortini, S.
Stable Behaviour of Infinitely Wide Deep Neural Networks.
International Conference on Artificial Intelligence and Statistics (AISTATS).

2019 —

◈ Peluchetti, S., and Favaro, S.
Neural SDE - Information Propagation through the Lens of Diffusion Processes.
Neural Information Processing Systems (NeurIPS) Workshop on Bayesian Deep Learning.

◈ Ramalho, T., Sousbie, T., and Peluchetti, S.
An Empirical Study of Pretrained Representations for Few-Shot Classification.
Neural Information Processing Systems (NeurIPS) Workshop on Meta-Learning.

2013 —

◆ Peluchetti, S., Roberts, G. O., and Casella, B.
The Strong Weak Convergence of the Quasi-EA.
Queueing Systems.

2012 —

◆ Peluchetti, S., and Roberts, G. O.
A Study of the Efficiency of Exact Methods for Diffusion Simulation.
Monte Carlo and Quasi-Monte Carlo Methods (MCQMC).

◆ Beskos, A., Peluchetti, S., and Roberts, G.
ε-Strong Simulation of the Brownian Path.
Bernoulli.

† : alphabetically ordered — equal contribution.