

Stefano Peluchetti

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Experience

Research Scientist

Sakana AI

May 2024 — Present

Tokyo, Japan

Principal Research Scientist

Cogent Labs

April 2016 — April 2024

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

HSBC

October 2014 — March 2016

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

HSBC

September 2008 — December 2013

London, UK

- ✦ Validated option pricing and market risk models
- ✦ Analyzed competing option pricing and hedging strategies

Research Fellow in Statistics

University of Warwick

October 2007 — March 2008

Coventry, UK

- ✦ Researched exact Monte Carlo estimation of SDE functionals
- ✦ Researched exact simulation of multidimensional SDEs

Education

PhD in Statistics

Bocconi University

2004 — 2008

Milan, Italy

Supervisor: Gareth O Roberts

Grade: pass with distinction

Courses: real analysis; probability; stochastic processes; frequentist, Bayesian and computational statistics; ...

MSc in Economics

Bocconi University

1999 — 2003

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

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. [↗](#)

◇ Favaro[†], S., Fortini[†], S., and Peluchetti[†], S.

Large-Width Asymptotics for ReLU Neural Networks with α -Stable Initializations.
Submitted. [↗](#)

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.