Luca Gaegauf

+41 (0)79 725 6063 | gaegauf.luca@gmail.com
linkedin.com/in/lgaegauf | lgaegauf.github.io
Rebstock 12, 6332 Hagendorn, Switzerland

PhD in Finance with 9+ years of experience in machine learning, data science, and AI, focused on solving complex financial problems. Expertise in deep learning, data analytics, and optimization. Skilled at extracting insights from complex datasets and delivering impactful research. Seeking to apply machine learning to cutting-edge projects in finance and economic analysis.

Professional Experience

Postdoc, Department of Finance, University of Geneva **March 2024 – Present**

- Led a project to develop a comprehensive guide for adopting advanced deep learning techniques in finance, facilitating adoption by providing clear, actionable methods and metrics for improving research efficiency.
- Spearheaded the development of a neural network-based algorithm to quantify non-linearity in financial models, identifying mischaracterizations in asset pricing, with potential to reshape standard approaches.

Research Assistant **September 2018 – January 2020**
Departments of Finance and Economics, University of Zürich and Geneva

- Developed a machine learning framework to analyze investor behavior in response to transaction costs, yielding actionable insights that can be applied in portfolio management decisions.
- Co-developed a deep learning algorithm to address high-dimensional macroeconomic problems, enabling a more precise analysis of individual cohort contributions to aggregate economic outcomes.
- Implemented a non-linear instrumental variable estimator using neural networks and machine unlearning, exploring innovative methods to improve causal research tools in economics.

Research Assistant **October 2015 - January 2020**
Chair for Marketing and Market Research, University of Zürich

- Implemented deep learning algorithms to estimate customer value metrics, establishing benchmarks to support research and testing of new algorithms in customer behavior analysis.
- Designed a workshop for industry managers, equipping them with tools and code to implement machine learning algorithms for customer lifetime value and churn prediction, fostering adoption of data-driven marketing strategies.
- Assisted in designing and teaching courses on customer lifetime value, advanced modeling techniques, R programming, machine learning, deep learning, and network analysis, enabling students to build strong technical and analytical foundations.
- Managed a team of 7 teaching assistants, overseeing content development for a deep learning lecture, ensuring high-quality instructional materials and smooth course delivery.

Freelance Data Scientist, Swiss Auto Insurance **October 2015 – June 2016**

- Designed and conducted an experiment to develop a decision support system for predicting customer churn, uncovering critical data limitations that influenced the insurer's decision to halt the project.

Finance Planner, Swiss Life Select, Zürich **October 2013 – March 2014**

- Advised clients on selecting health and life insurance, pension plans, and investment products tailored to their financial goals, closing multiple sales and providing long-term financial planning support.

Education

PhD in Finance, University of Zürich **2020 – 2024**
Summa Cum Laude | Thesis: *Essays in Finance*

Master of Arts in Economics and Business Administration, University of Zürich **2014 – 2017**
Summa Cum Laude | Thesis: *GMM estimation with many weak moment conditions using regularized jackknife GMM*

Bachelor of Arts in Economics and Business Administration, University of Zürich **2011 – 2015**
Thesis: *How to value customers? Estimating customer lifetime value using machine learning techniques*

Teaching Experience

– Spring 2020: How to use Deep Learning for Marketing? (Master seminar)
– Fall 2018: Machine Learning—A Non-Technical Introduction with Applications to Marketing. (Master lecture)

Research & Ongoing Projects

– Azinovic, M., Gaegauf, L., & Scheidegger, S. (2022). Deep equilibrium nets. International Economic Review.
– Gaegauf, L., Scheidegger, S., & Trojani, F. (2023). A comprehensive machine learning framework for dynamic portfolio choice with transaction costs. Working paper available on SSRN.
– Empirical causal asset pricing with trading costs (with V. Wolff).
– Which shoes fit this dress? Using product images to infer "perfect pairings" across categories without supervision (with M. Meierer).

Skills

Technologies: Proficient in Python, R, Matlab; Exposure to Haskell, C, Mathematica, SQL dialects.
Machine Learning Tools: TensorFlow, PyTorch, Keras, SciPy, MPI, Cloud Computing Infrastructures.
Languages: English (Native), German and Swiss German (fluent), Portuguese and French (beginner).
Hobbies / interests: Swimming, running, surfing, and bouldering / Deep learning, nature, and ecosystems.