Fabian Steinmetz

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Education

Minerva University *San Francisco, CA*
*BS in **Computer Science** and BS in **Mathematics*** – GPA: 3.9 *Aug 2023 – May 2027*
- Relevant Coursework: Machine Learning, Computational & Bayesian Statistics, Complex Systems Modeling, Real Analysis, Differential Equations, Calculus, Linear Algebra

Skills & Languages

Advanced: Python, SQL, R

Intermediate: C++, JavaScript, Julia, HTML & CSS, React Native

ML & Data Libraries: scikit-learn, PyMC, SciPy, Pandas, NumPy, SymPy, SageMath

Tools & Platforms: Snowflake, Git, Databricks (familiar), React Native

Selected Experience

Epidemiology Research Assistant San Francisco, CA
Minerva Mathematical Modeling Research Group *Aug 2025 – present*
- Independent study project with Prof Rios extending Shin et al's disease spread model with additional hospitalization compartments.
- Implementing and simulating it through Bayesian hierarchical models in PyMC and Stan and learning about and applying MCMC sampling techniques (NUTS, HMC) for parameter estimation and uncertainty quantification in ODE-based compartmental models.
- Conducting model comparison and sensitivity analysis to evaluate predictive performance across different epidemic scenarios.

Data Science Intern Cologne, Germany
Alpha Sophia (US-German MedTech Startup) *Jun 2025 – Sep 2025*
- In the data science team, I reserached name disambiguation methods and proposed my own network-based matching method.
- Designed and deployed probabilistic matching system linking 3.9M healthcare professionals with 25M+ PubMed articles in Python/SQL.
- Experimented with PMI-based scoring, clustering algorithms, and fuzzy matching to increase match accuracy by 103% to 10,000+ users.
- Architected new SQL/XML database schema for Clinical Trials data, optimizing query performance for large-scale data retrieval.

Engineering Research Assistant Seoul, South Korea
Korea Institute of Science and Technology *Jan 2025 - May 2025*
- In the A-labs laboratory in a team of 12 researchers, I designed and conducted experiments to evaluate mineral carbonation efficiency.
- Used statistical modeling and data visualization to analyze and optimize CO_2 conversion rates in carbon capture trials.

Machine Learning Research Assistant Taipei City, Taiwan
National Taiwan University *Aug 2024 – present*
- Joined Prof Ma's Environmental Systems Lab and built end-to-end ML pipeline processing large-scale agricultural dataset: designed ETL workflows, engineered features, and trained Random Forest and clustering models to predict sustainability outcomes.
- Developed statistical models in Python for exploratory analysis and deployed visualization dashboards to communicate insights from 2021 NPS dataset (50,000+ data points).
- Applied model evaluation techniques including cross-validation and hyperparameter tuning to optimize predictive performance

Selected Awards & Prizes

Fiscal Challenge US Vice Champion *2025*
Minerva University, The Fiscal Challenge Economics Modeling Competition

Silver Medal Math Olympiad *2023*
St Clare's Oxford, British Mathematics Olympiad Oxfordshire

First and Second Prizes German National Youth Music Competition for Piano *2018-2023*
"Jugend musiziert" (German Youth Music Competition)

Vice State Debate Champion *2022*
"Jugend debattiert" (German National Youth Debate Championships)

Bronze Medal International Mathematical Modeling Competition Maastricht *2020*
Freiherr-vom-Stein Gymnasium Leverkusen, Maastricht University)

Other interests

President Economics Club *Minerva University, 2025*
Napkins Magazine Literary Editor *Minerva University, 2023-2025*
Sustainability Collective Member *Minerva University, 2023-2025*
Model United Nations Secretary General *St Clare's Oxford, 2021-2023*