Johannes Schulz

Machine Learning Engineer — Computer Scientist — Mathematician

Email: schulz.johannes97@gmail.com
Location: Homburg, Saarland, Germany
Profiles: Fiverr – Preply – Kaggle – GitHub – LinkedIn

About Me

With a strong foundation in **probabilistic modeling**, **statistical inference**, and **data-driven decision making**, I bring a research-oriented, yet practical approach to solving real-world problems and engineering challenges. I hold an MSc in Machine Learning from the University of Tübingen and have conducted research at the Max Planck Institute for Intelligent Systems.

Currently, I am teaching mathematics online. Additionally, I am quite engaged in studying various ML related topics through hands on projects, involving MLOps, Generative AI & large language models (LLMs) and REST API development. I deliver tailored **machine learning solutions** as a freelancer—both independently and via Fiverr. Analytical and curious by nature, I enjoy solving complex problems and am deeply committed to continuous learning.

Education

- **MSc in Machine Learning**, University of Tübingen, Germany (2019–2022)
  Thesis: Community Detection in Temporal Networks
- **BSc in Computer Science**, Saarland University, Germany (2015–2019)
  Focus: Computer Vision, Operating Systems, Algorithms

Skills

Programming

- **Python** (Proficient – 5+ years, main language for ML and data processing)
- **C** (Advanced – Strong understanding of low-level programming)
- **C++** (Intermediate – Familiar with object-oriented and performance optimization)
- **Java** (Advanced – Used for backend development and software engineering)
- **SQL** (Intermediate – Writing queries, database manipulation)

Machine Learning Libraries

- **scikit-learn** (Proficient – Feature engineering, model selection, parameter tuning)
- **pandas, numpy** (Proficient – Data manipulation, numerical computing)
- **TensorFlow, PyTorch** (Basic – Some experience in deep learning frameworks)

Machine Learning Expertise

- Feature Engineering, Data Preprocessing
- Probabilistic Modeling, Statistical Analysis
- Predictive Modeling, Model Optimization
- LLM Employment and Integration

Web Development

- **HTML, CSS, JavaScript** (Intermediate – Web frontend fundamentals)

- **FastAPI** (Intermediate – REST API development)
- **Web Scraping and Automation** (Intermediate – Experience with **Playwright** and **BS4**)

Tools

- **LaTeX** (Proficient – Used extensively for academic writing and documentation)
- **Git** (Intermediate – Version control for software and ML projects)
- **Linux** (Intermediate – Shell scripting, server environment setup)
- **Excel, PowerPoint** (Basic – Used for reporting and visualization if Latex was infeasible)

Projects

- **Web Scraping Project** (GitHub)
  - Developed a a structured dataset of veterinary science articles by scraping the **Merck Veterinary Manual**, enabling downstream ML/NLP applications.
  - Utilized the **Playwright** web automation tool and HTML parsing with **BeautifulSoup** for automated data extraction.
- **VetBot** (GitHub)
  - Developed a veterinary assistant chatbot using a **Retrieval-Augmented Generation (RAG)** pipeline based on a custom veterinary science dataset.
  - As this project was part of the 5dgai kaggle workshop, documentation in the form of a youtube video and an article can be found here and here.
  - Built using **LangChain**, **Google AI**, and **ChromaDB**, with a focus on minimizing hallucinations and improving reliability through grounded responses

Experience

- **Freelance Machine Learning Engineer**, Self-employed, Online (2023–Present)
  - Provided end-to-end **Machine Learning Solutions** on Fiverr and through private engagements.
  - Screw Manufacturing Optimization (**descriptive analysis** and **predictive modeling** to identify key factors influencing screw production outcomes)
  - **Data Cleaning**, **processing** and **statistical inference** analysis on medical datasets.
- **Mathematics Teacher**, Self-employed, Online (2023–Present)
  - Taught university-level **Mathematics and Computer Science** via Preply and privately.
  - Developed structured lesson plans for **linear algebra, calculus, and probability theory**.
- **Research Assistant**, Max Planck Institute for Intelligent Systems, Germany (2022)
  - Developed **probabilistic generative models** for analyzing **large-scale temporal networks**.
  - Conducted research in **network science and statistical inference**.
- **Teaching Assistant**, University of Tübingen & Saarland University, Germany (2015–2022)
  - Tutored various courses including **Statistical Machine Learning, Neural Networks, Algorithms, and Logical Programming**.
  - Assisted students with **problem-solving, exam preparation, and theoretical concepts**.
- **Research Assistant**, ZeMA – Zentrum für Mechatronik und Automatisierungstechnik (2016–2017)
  - Developed software in the area of **human-machine interaction (HMI)**.
  - Contributed to **interface design and usability improvements** for industrial applications.

Languages

- **German:** Native (C2)
- **English:** Fluent (C2)
- **French:** Intermediate (B1)

Publications

- Othman, S., Schulz, J., Baity-Jesi, M., & De Bacco, C. (2022). *Modeling Node Exposure for Community Detection in Networks.* International Conference on Complex Networks and Their Applications.