Josch Hagedorn

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PRELIMINARY INFORMATION

Location: Lehigh Valley, PA, but wanting to relocate.
Work Eligibility: Green Card holder (No additional assistance required).
Education Status: Completing Master's thesis remotely and at flexible hours.
Availability: Flexible and able to start immediately.

EDUCATION

Master of Science in Physics | *Ruprecht Karls University Heidelberg, Germany*   Apr. 2022 - Aug. 2024
- Focus on computational physics, especially machine learning, data science, time series analysis, computer vision and dynamical systems theory
- Master's thesis explores novel approach in the field of dose calculation in radiotherapy using diffusion models; training data is generated using Monte Carlo simulations

Bachelor of Science in Physics | *Ruprecht Karls University Heidelberg, Germany*   Oct. 2018 - Mar. 2022
- Recipient of Germany's most prestigious scholarship, *Studienstiftung*, for young people with outstanding talent who can be expected to make an exceptional contribution to society, awarded to less than 0.5% of German students
- Bachelor's thesis compared classical filter and deep learning methods for the denoising of ECGs (see Github)

EXPERIENCE

Graduate Student Researcher | *Ruprecht Karls University Heidelberg, Germany*   July 2022 - Mar. 2024
- Applied machine learning and data science research in the medical field
- Managed datasets with high dimensionality and low signal-to-noise ratio, training machine learning models such as XGBoost and various deep learning methods predominantly with PyTorch
- Conducted thorough preprocessing on raw datasets, including Principal Component Analysis (PCA) or handling missing data using simple imputation methods and more advanced techniques like Multiple Imputation by Chained Equations (MICE)
- Communicated complex concepts to non-technical stakeholders, including medical doctors, facilitating discussions on research problems and presenting results

Teaching Assistant | *Ruprecht Karls University Heidelberg, Germany*   Oct. 2021 - May 2022
- Supervised lab work of 3rd and 4th semester Physics students
- Graded ca. 300 papers submitted by students featuring calculations, derivations, as well as data analysis, visualization and statistical modelling using Python, Jupyter Notebooks, NumPy, Matplotlib, and SciPy

PROJECTS

Arbitrage Trading System | *Python, WebSocket, Async, AWS, Binance API, SQL*   since Aug. 2023
- Building a trading system exploiting arbitrage opportunities on Binance cryptocurrency exchange (see Github)
- Running a co-hosted AWS server for data processing, handling real-time data using web sockets and saving it to a database, developing, testing, and maintaining the trade execution engine

Competitions | *Python*   2023, 2024
- Prosperity 2 Global Trading Challenge: hosted by IMC, 15-day intensive trading competition combining algorithmic and manual trading strategies
- Europe Regional Terminal Spring 2023: hosted by Citadel, invitation only, developed algorithms for a tower defense-style strategy game and competed in single-elimination tournaments
- Ready Trader Go: hosted by Optiver, coding competition focused on algorithmic trading, developed and optimized a trading algorithm for Optiver's simulated market exchange

IBM Data Science Professional Certificate | *Python, SQL*   Feb. 2023
- Developed hands-on skills in data science tools, Python, SQL, data visualization, and machine learning models during 200 hours of coursework

TECHNICAL SKILLS

Python, SQL, Git, Visual Studio Code, Linux, Amazon Web Services (AWS), UNIX, pandas, NumPy, Matplotlib, PyTorch, SciPy, scikit-learn, Asyncio