Paul Schulze

paul_schulze@outlook.de ❖ +49 157 79648667 ❖ schulze-paul.github.io ❖ Hamburg

WORK EXPERIENCE

Gerland Group: Theory of Complex Biosystems   **Nov. 2022– Present**
Master student   *Munich*
- Implemented computational model for the growth of bacterial shell envelopes.
  - Collaborative project with the Amir Group of Harvard University.
- Improved execution time by over 400x by implementing a custom Python extension module in C++.
- Interfaces with COMSOL through the Java bridge provided by JPype for Finite Elements computations.

BIBA – Bremer Institut für Produktion und Logistik GmbH   **Sept. 2020 – June 2023**
Student software engineer   *Bremen*
- Developed simulation model of manufacturing facility with Java in Anylogic.
- Used model to train reinforcement learning agent in Python with PyTorch and Stable-Baselines3.

Enercon GmbH   **Aug. 2021 – Mar. 2022**
Student quantitative analyst   *Bremen*
- Developed a framework to quantify risks and uncertainties in existing aerodynamic simulations based on a polynomial chaos and Monte Carlo approach.

Carl Zeiss Meditec AG   **Sept. 2019 – Dec. 2019**
Intern   R&D ophthalmology   *Oberkochen*
- Conducted electromechanical experiments of ophthalmology surgical instruments to quantify behavior.

Nachhilfeschule Die Glühbirne   **May 2016 – Sep. 2017**
Tutor   *Bremen*
- Taught classes 5-12 in Mathematics, Physics and English.

EDUCATION

Technical University Munich   **July 2023**
MS Applied and Engineering Physics   *Munich*
- Coursework: Computational Physics, Biomedical Physics, Renewable Energy, Data Mining, Deep Learning.

Universität Bremen   **Mar. 2020**
BS Physik   *Bremen*
- Thesis at BIAS GmbH: Coherent light simulations (github.com/schulze-paul/BA-Thesis), Grade: 1,3
- Studied abroad in Leiden, Netherlands during fall 2017 semester (Leiden University)

SKILLS

- **Languages:** Python (NumPy, Numba, Cython, Matplotlib, PyTorch, Tensorboard), Java, MATLAB, C++
- **Developer Tools:** Linux, git, GitHub, GitLab, Visual Studio Code
- **Software:** COMSOL Multiphysics, AnyLogic

PROJECTS

Ray Tracer (github.com/schulze-paul/Ray-Tracer) *C++, Python, Cython*
- Initial implementation with Python and Cython. Ported to C++ and extended with spectral resolution.

VideoLab (github.com/schulze-paul/Video-Laboratory) *JavaScript/CSS/HTML, React, Electron*
- Project in collaboration with a researcher from social sciences collecting data about YouTube videos.
- Pulls video data from the Youtube API and displays video player and data in a modern interface next to form.