Aryan MUKHERJEE

aryanmukherjee.com | jobs@aryanmukherjee.com | github.com/Wayrion |
linkedin.com/in/aryan-mukherjee-170646253

19-year-old Indian national and Computer Science student specializing in machine learning research and scientific computing. Demonstrated experience in mathematical modeling, data analysis, and open-source development. Based in Amsterdam, Netherlands.

EDUCATION

Vrije University Amsterdam — Amsterdam, Netherlands
Bachelor's in Computer Science — *08.2025 – 08.2027*

Bavarian International School — Munich, Germany
International Baccalaureate: Computer Science, Mathematics, Physics (Higher Level) — *08.2022 – 05.2024*

EXPERIENCE

Freelance Software Developer — 02.2022 – Present
Self Employed | github.com/Wayrion/Damascus-Cogs — *India, Germany*

- Delivered and often exceeded expectations of **30+ Clients**
- Developed **Python plugins** for the Red-Discord-Bot framework with a focus on automation
- Applied **requirements analysis** and **software design principles** to deliver client specifications
- Gained experience in **API integration** and **data handling** for real-world applications

PROJECTS

ML-Powered Lost and Found System | *Django, TensorFlow, Python* — 11.2022 – 02.2024

- Developed **computer vision system** using TensorFlow for automated clothing detection and classification
- Implemented **full-stack web application** with Django, MySQL, and Google OAuth integration
- https://github.com/Bavarian-International-School/BIS-Lost-and-Found-Website

Agentic LLM Evaluation Framework | *LangGraph, Hugging Face, Python* — 10.2025 – Present

- Developed pipeline to test LLMs using **LangGraph's agentic framework** against the Python subset of **HumanEval dataset**
- Implemented **ReAct-style testing** methodology for comprehensive model evaluation.
- Evaluated **168** different data points
- Added a checkpoint system to resume in case of a crash during a lengthy evaluation.
- Implemented **2** different sandbox environments (Python Sandbox and Docker) to accommodate the user's requirements for security and convenience.
- https://github.com/Wayrion/jetbrains-llm-eval

Home Lab | *ZFS, Linux, TrueNAS, Docker, Grafana* — 12.2024 – Present

- Architected and deployed a **16TB (8TB usable)** Network Attached Storage with TrueNAS Scale, capable of reaching **1 Gb/s**
- Implemented **RAID Z2 ZFS storage pool** with automated snapshotting and cloud backups for data integrity
- Deployed 15+ containerized services using **Docker Compose**
- Configured **monitoring and analytics** with Grafana and NetData for system performance optimization
- https://aryanmukherjee.com/portfolio/blog/images/homelab.jpg

VU Link Aggregator | *JavaScript, HTML/CSS, GitHub Pages* — 05.2025 – Present

- Built **fuzzy search algorithm** for indexing university internal websites and resources
- https://vu-devs.github.io/LA/

RESEARCH

Machine Learning Research — 01.2023 – 01.2024
DoS Attack Detection using Neural Networks | aryanmukherjee.com/portfolio/reports/MLDoSDetection.pdf — *Munich, Germany*

- Supervisor: **Dr. Alissa Carter** - Developed machine learning model for HTTP Flood DoS attack detection
- Architected **data preprocessing pipeline** using **Matplotlib, NumPy, and Pandas** for feature extraction
- Implemented **Dense Neural Network** using **Python, TensorFlow, and Keras** for classification tasks
- Achieved **95.4% accuracy** on test dataset and **92.2%** on unknown dataset

Physics Report — 06.2023 – 05.2024
Investigating Voltage vs Luminance in LEDs | aryanmukherjee.com/portfolio/reports/Voltage&Luminance.pdf — *Munich, Germany*

- Designed and conducted **physics research** investigating LED luminance vs voltage relationships
- Implemented statistical validation using Kolmogorov-Smirnov tests with p-value analysis to check for data significance
- Analyzed complex error sources including Gaussian beam profiles, quantum effects, and thermal variations
- Developed **data processing algorithms** in Python and Matplotlib for data analysis and visualization

Mathematics Report — 07.2023 – 03.2024
Investigating Roller Coasters using Bézier Curves | aryanmukherjee.com/portfolio/reports/BezierCurves.pdf — *Munich, Germany*

- Developed **6th-order Bézier curve models** to analyze roller coaster safety and physiological effects
- Programmed derivative calculations for velocity, acceleration, and jerk analysis using Python, NumPy and SciPy
- Achieved Mean Square Error of **0.6** demonstrating model accuracy
- **Built a tool**, (github.com/Wayrion/Bézier-Fitter) to easily trace on an image and fit the traced curve with a Bézier curve of customizable degree

Volunteering

Open-Source Developer @ TUM   05.2024 – Present
Technical University of Munich | [tum.dev](tum.dev)   *Munich, Germany*
- Contributed to **open-source software** development for university infrastructure
- Fixed critical bugs in eat-api and added support for Heilbronn campus at menu.tum.sexy
- Collaborated with **a team of 9 developers** and pitched ideas

Technical Skills

Languages: **Python**, C, C++, Julia, MATLAB, TypeScript/JavaScript, HTML/CSS, Markdown, LaTeX

Frameworks and Libraries: **TensorFlow, Keras, Matplotlib, Scikit-learn, NumPy, SciPy, Django, OpenCV**, LangGraph, Hugging Face, MPI, Flask, Discord.py, OpenAI/OpenRouter

Cloud and DevOps: **CI/CD (GitHub Actions), Docker, Git, Linux**, TrueNAS (ZFS), Proxmox, Oracle Cloud Infrastructure, Grafana

Data Analysis and Visualization: Statistical modeling, curve fitting, error analysis, data processing

Academic Achievements

University of Waterloo Fermat Contest: Distinction in Mathematics

American Mathematics Competition: First place in AMC 8

University of Waterloo Euclid Contest: Participation

Pre-Regional Mathematical Olympiad: Participation

Languages

English C2

German A2

Hindi Native

Bengali Native