Ehsan Ullah

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Education

University of Bonn — 2024 – 2026
Master of Science in Computer Science — *Bonn, Germany*
- Specializing in Machine Learning and Intelligent Systems.

National University of Computer and Emerging Sciences (NUCES) — 2019 – 2023
Bachelor of Science in Computer Science — *Lahore, Pakistan*
- Graduated with Magna Cum Laude.

Experience

Metapolaris GmbH | *Software Engineer - Werkstudent* — 4/2025 – Present
- Built Airflow & Prefect pipelines to automate data synchronization, anomaly detection, and stakeholder notifications across 8+ systems, saving hours of manual effort per week.
- Developed agentic LLM workflows using RAG and MCP based tool integrations, enabling the model to retrieve knowledge and invoke internal tools to produce valuable output.
- Rolled out backup and recovery solutions for multi-terabyte production databases, including scheduling, retention, and verification.

Humanoid Robotics Lab - University of Bonn | *Research Assistant* — 5/2024 – Present
- Applied reinforcement learning algorithms and simulation-to-reality (sim2real) transfer processes for robotic systems, significantly enhancing their autonomy & decision-making capabilities.

DZNE - German Center for Neurodegenerative Diseases | *Research Assistant* — 7/2024 – 12/2025
- Designed and conducted VR based scientific experiments to collect motion data for quantifying movement disorders among patients suffering from neurodegenerative diseases.
- Engineered machine learning models (Classification and Regression) on extracted motion features to successfully identify Parkinson's and Ataxia subjects.

Strategic Systems International | *Software Engineer* — 7/2023 – 3/2024
- Shipped 5+ features across Node.js and Python microservices with full ownership from design to production.
- Developed platform's core MySQL reporting feature that analyzed 10M+ records for data-driven decision making.
- Implemented effective optimizations across 15+ legacy APIs, reducing average latency rates by 30% enhancing system responsivenes.

Dubizzle Labs | *Backend Engineer* — 4/2023 – 6/2023
- Developed TypeScript-based microservices and REST endpoints for seamless frontend integration.
- Created custom middlewares using Express to handle intricate business logic and manage server-side operations.

Technical Skills

Languages: C++, C#, Python, Java, TypeScript, SQL.
Frameworks: React, Express, .NET, FastAPI, Spring Boot.
Developer Tools: Git, Docker, VS Code/Cursor, Android Studio, Figma
Libraries: PyTorch, Pandas, NumPy, Matplotlib, Regex, Sci-kit Learn, Retrofit2, Axios, Jest, Selenium.
General: Microservices, Event-Driven Architecture, RDBMs, NoSQL Databases, ORMs, OOP, Database Normalization, Socket Programming, Multi-Threading, Algorithm Analysis, familiarity with Scrum Practices.

Personal Projects

LLM Controlled CoBots | *Robotics & LLMs*
- Utilized VLMs to create an adaptive control system capable of identifying and handling unknown objects, demonstrating a 90% success rate in object classification and sorting.

F1TENTH Autonomous Racing with Deep Reinforcement Learning (PPO) | *RL & Robotics*
- Developed and deployed a PPO based autonomous racing agent for the F1TENTH platform which was trained in simulation and fine-tuned on the physical car to achieve robust high-speed control.

Multilingual Named Entity Role Classification | *NLP & Deep Learning*
- Developed a PyTorch based model for multi-label, multi-class classification of named entities in news articles.
- Trained and validated the model on multilingual datasets (English and Portuguese) to ensure robust performance in diverse linguistic contexts.