DANIEL BARTA

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PROFILE

M.Sc. Electrical & Information engineer with 3+ years of hands-on experience in machine learning and generative AI methods, and 1 year in quantum computing. Experienced in software development and neuro-symbolic reasoning.

CORE COMPETENCIES

Quantum Computing — Machine Learning — Optimization — Communication Systems

EDUCATION

Technical University Berlin *Sep 2022 – Aug 2025*
M.Sc. in Electrical and Information Engineering

Thesis: "One-Bit Channel Estimation with Generative Adversarial Networks."

Technical University Munich *Oct 2017 – Aug 2022*
B.Sc. in Electrical and Information Engineering

Completed advanced coursework in quanutmc computing, machine learning, optimization, signal processing, and communication theory.

PROFESSIONAL EXPERIENCE

Working Student – Quantum Computing and AI Mar 2023 – Present
Fraunhofer FOKUS, Berlin

- Developed novel diffusion-based generative models for synthesizing parameterized quantum circuits (PQCs), achieving substantial improvements in generating high-fidelity GHZ states and optimizing quantum ML workflows.
- Introduced a GNN-based surrogate model for assessing and benchmarking diverse quantum architecture configurations.
- Built symbolic reasoning modules within neuro-symbolic frameworks for autonomous driving, ensuring legal and regulatory compliance.
- Developed robust backend/frontend solutions with Karma framework for efficient JSON-to-RDF mapping.
- Improved federated database query efficiency, enabling real-time structured output across multiple systems.

Intern – Engine and Data Analytics Mar 2022 – Aug 2022
BMW Group, Munich

- Enhanced automated model verification pipelines, reducing testing time and improving accuracy.
- Optimized database schemas for faster retrieval, improving analytics efficiency.
- Analyzed driving-behavior datasets using Python and MATLAB with advanced game-theoretic models.

Student Assistant – IT & EDV Support Apr 2019 – Apr 2022
Ludwig-Maximilians-University Munich

- Maintained and supported IT systems for a large academic department, resolving issues swiftly to ensure operational continuity.

Project Manager Mar 2016 – Jan 2019
PA/SPIELkultur e.V., Munich

- Managed conventions and workshops for 100+ attendees, overseeing logistics, budgets, vendor contracts, and sponsorships.
- Developed effective marketing strategies, increasing average attendance by 20%.

PUBLICATIONS

Conference Papers

- "Leveraging Diffusion Models for Parameterized Quantum Circuit Generation," accepted at IEEE QCE '25. [arXiv:2505.20863]
- "Surrogate Benchmark for Quantum Architecture Search," under review. [arXiv:2506.06762]

Journal / Book Chapters

- "Ensuring Rule Compliance in Autonomous Driving," in *Lecture Notes in Computer Science* (Springer), 2025. [DOI:10.1007/978-3-031-72407-7_17]

SKILLS

Languages & Frameworks: Python — PyTorch — Qiskit — PennyLane — TensorFlow — MATLAB/Simulink — Java — C++

Tools & Platforms: Git — Docker — Linux — Federated Systems

LANGUAGES

German	Native
English	sufficient
Romanian	B2
Italian	B1