JUSTIN PAUCKERT

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SUMMARY

Software developer with 6+ years of experience and a strong background in mathematics. Areas of expertise include data science, quantum computing and optimization.

SKILLS

Python: Qiskit, NumPy, pandas, matplotlib, pyqubo — SQL — Docker — Git — Linux — LaTeX — Agile (Scrum)

EXPERIENCE

Quantum Engineer Apr 2023 - present
T-Systems (Deutsche Telekom), Office of the CTO *Berlin, Germany*

- Implemented quantum-inspired solvers in Python for real-world applications with focus on optimization
- Realized partnerships with global clients, resulting in successful projects using T-Systems quantum cloud
- Delivered keynotes and conducted workshops about QC in both internal and external settings

Research Intern: Quantum-Inspired Optimization Oct 2022 - Mar 2023
Fujitsu Research Europe *London, UK*

- Implemented new features for *AutoQubo*, improving problem formulation for quantum computers
- Introduced an automatic sampling method for related problems, eliminating the need for manual settings
- Made optimization problems up to 5x faster to encode and 16 % easier to solve

Research Intern: Quantum-Inspired Optimization Jan 2022 - Aug 2022
Fujitsu Ltd., Digital Annealer Research Team *Kawasaki, Japan*

- Made it into the 2% of accepted applicants for *Vulcanus in Japan*, an EU-sponsored exchange program
- Built a solver for QUBO problems with automatic parameter tuning, written from scratch in Python
- Outperformed previous state-of-the-art method, finding optimal solutions up to 9x faster

EDUCATION

Master of Science: Mathematics, Technical University of Berlin 2020 - 2024
Relevant Courses: Industrial Data Science, Combinatorial Optimization, Monte Carlo Methods

Bachelor of Science: Mathematics, Technical University of Berlin 2015 - 2020
Relevant Courses: Probability Theory, Cognitive Algorithms, Models of Neural Systems

PUBLICATIONS AND CERTIFICATES

Pauckert, Justin et al. *"AutoQUBO v2: Towards Efficient and Effective QUBO Formulations for Ising Machines."* Proceedings of the Companion Conference on Genetic and Evolutionary Computation. Association for Computing Machinery, 2023. • https://doi.org/10.1145/3583133.3590662

Pauckert, Justin et al. *"Comparing Solution Combination Techniques in Scatter Search for Quadratic Unconstrained Binary Optimization."* Proceedings of the Companion Conference on Genetic and Evolutionary Computation. Association for Computing Machinery, 2023. • https://doi.org/10.1145/3583133.3596319

Qiskit Certificate of Quantum Excellence, 2023 Qiskit Global Summer School

Test of English as a Foreign Language (TOEFL), score: 111/120

AutoQUBO, Tool for converting a high-level Python description of an optimization problem into an equivalent QUBO representation. • github.com/FujitsuResearch/autoqubo

Stein Variational Gradient Descend, Presentation on a bayesian inference algorithm including animations made with matplotlib. • github.com/lpodl/Stein-Variational-Gradient-Descend • youtu.be/znVcfdVILs0