Nico Salm

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Education

University of Wisconsin – Madison Madison, WI
Bachelor of Science in Computer Science, Data Science *May 2026*

- Selected Coursework: Algorithms, Data Structures, Data Science Programming, Statistical Modeling, Linear Algebra, Data Ethics & Policy, Calculus, Machine Organization & Programming, Materials Informatics

Experience

Dane Morgan Group | *Python (PyTorch, Scikit-learn), HTCondor* Sep 2022 – Present
Research Assistant (Materials Informatics)

- Curated a Variational Autoencoder (VAE) to compress matrix representations, reconstruct inputs from decoded latent space, and generate novel matrix structures to achieve target properties.
- Applied convolutional neural networks and linear models to several materials datasets and shared them as resources through Cloud Foundry, assisting researchers around the world.
- Utilized the HTCondor Software Suite to maximize computational throughput.

Projects

Team Scheduling Manager | *Rust, Diesel, Postgres, React, Rocket, Serde, Cargo, Git* Jan 2024 – Present

- Developed a full-stack task scheduler using Rust, Postgres, and React, enhancing data management and UX.
- Implemented efficient RESTful APIs with Rocket (or Actix-Web), facilitating robust user authentication and task management between React and PostgreSQL.
- Engineered a machine-learning-driven analytics panel using Rust and Serde, enabling users to visually assess their productivity peaks and durations.

Photonic Quantum Generative Adversarial Network | *Quandela Perceval, Python (PyTorch), Git* Feb 2024

- Achieved a notable 45% fidelity in quantum state engineering by utilizing novel optimization techniques, including secant descent and vectorized approaches, to train Quantum Generative Adversarial Networks (QGANs), showcasing advanced problem-solving in quantum algorithm optimization.
- Secured a Top 3 finish in MIT's IQuHack 2024, excelling in Quandela's Quantum Photonics Challenge.

Community-Supported Agriculture App | *React, Next.js, MongoDB Atlas, Python (Scikit-learn), Git* Sep 2023

- Pioneered a sustainability-driven commerce platform where gardeners and small-scale farmers collaborate.
- Created a full-stack web application featuring an intuitive UI using React and Tailwind CSS; integrated machine learning-driven data analytics and Chart.js visualizations.
- Awarded Best Agricultural Innovation by John Deere at HackUIowa 2023.

Achievements and Leadership

MIT IQuHACK Top 3 (2024) | Quantum Machine Learning, Photonics, Circuits
IBM Quantum Excellence Scholar (2023) | Multi-qubit Systems, Superconducting, Noise Mitigation
Wisconsin Quantum Computing Club Vice President (2023–) | Workshops, Talks, Mentorship
IBM Qiskit Fall Fest Organizer (2023) | Inaugural Hackathon, 80+ Attendees, 50+ Submissions

Technical Skills

Programming Languages: JavaScript, TypeScript, Python, C, C++, Java, Rust, Zig, R, x86 Assembly, SQL
Frameworks/Runtimes: React, Astro, ExpressJS, NodeJS, Bun
Infrastructure: AWS (Amazon Web Services), Google Cloud, PostgreSQL (psql), S3
Developer Tools: Shell (Bash), Docker, Git, GitHub, Linux, NeoVim, Visual Studio Code