Nico Salm

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Education

University of Wisconsin – Madison | *GPA: 3.6/4.0* — Madison, WI
Bachelor of Science in Computer Science, Data Science — *May 2026*

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

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

- Developed a full-stack task scheduler using Rust, Postgres (psql), and React, enhancing data management and UX.
- Implemented efficient RESTful APIs with Rocket (or Actix-Web) and Rust, facilitating robust user authentication and task management between React and PostgreSQL.

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.

Paper++ | *React, Bootstrap, Axios, Node.js/Express, Google OCR API, Java, npm, Git* — Mar 2023

- Designed Paper++ to parse handwritten user-provided .PNG images (utilizing Google OCR API), execute the handwritten code, and provide output, all through an intuitive front-end.
- Engineered support for compilation of unlimited images allowing realization of complex programs.
- Recognized as a hackathon finalist (4th/56) at MadHacks Spring 2023.

Achievements and Leadership

MIT IQuHACK 2024 Finalist | *Top 3, Quantum Machine Learning, Photonics* — Feb 2024
IBM Qiskit Fall Fest 2023 Organizer | *Inaugural hackathon, 80+ attendees, 50+ submissions* — Fall 2023
Wisconsin Quantum Computing Club Vice President | *Workshops, Talks, Mentorship* — Feb 2023 – Present
IBM Quantum Excellence Scholar | *Multi-qubit Systems, Superconducting, Noise Mitigation* — Summer 2023

Technical Skills

Programming Languages: C, Go, HTML/CSS, Java, JavaScript, Python, R, Rust, SQL, TypeScript
Frameworks: Astro, Bun, Node.js, PyTorch, Qiskit, React, Tensorflow
Infrastructure: AWS (Amazon Web Services), Google Cloud, Postgres (psql), S3
Developer Tools: Bash, Docker, Git, GitHub, Linux, Unit Testing