Ryan T. Gordon, Ph.D.

Yorktown Heights, NY ● (309) 255-6871 ● rtg314159@gmail.com
Software Engineering Portfolio Website Link: https://ryan-gordon-314159.github.io/

Versatile software engineer with over 8 years of experience building solutions in Python for the Artificial Intelligence and Quantum Computing Programs at IBM Research

Work Experience

Software Engineer, IBM Artificial Intelligence Program,
T. J. Watson Research Center, Yorktown Heights, NY *(September 2023-March 2025)*

- Large-scale data processing for training IBM Granite 3.0. Built, used, and maintained Python data processing pipelines using distributed computing on clusters with more than 100 nodes to process very large datasets for AI model training
- Constructed super-pipelines for stitching together multiple stages of data processing, adding verification pipelines after each stage to check that all data has been correctly processed
- Created Python SDK for generative AI system using classification for iteratively fine-tuning LLMs to systematically improve their performance. This was done using IBM's internal retrieval augmented generation (RAG) system
- Tested multiple tokenizers available on Hugging Face to compare corresponding model performance
- Direct product development experience writing and testing code for data-prep-kit (https://github.com/data-prep-kit), a toolkit for AI researchers working to prepare data for LLMs

Software Engineer/Physicist, IBM Quantum Computing Program,
TJ Watson Research Center, Yorktown Heights, NY *(August 2016-September 2023)*

- Project Manager: *Studying Two-Qubit Gate Fidelity vs Repetition Rate in Multi-Qubit Processors*
  - Wrote Python software for running quantum circuits, collecting two-qubit fidelity data, and analyzing it to produce clear figures explaining these results
- Project Manager: *Environmental Impact on Qubit Coherence*
  - Developed and utilized Python automation to collect data on qubit performance, while studying how environmental factors can influence it. Learning from this project produced a qubit packaging where the highest T_1 time ever measured was recorded for a transom qubit. See: https://x.com/jaygambetta/status/1395347923123245056
- Developing Python Automation for Single Qubit Calibration and Characterization
  - Software developer/test physicist as part of a cross-functional team to improve qubit coherence. Created software for automating qubit characterization and calibration

Skills

Languages:	Python, SQL, Java, C++, HTML
Machine Learning:	NLPs, LLMs, Model Training, Fine Tuning, Generative AI, PyTorch, HuggingFace
Experience:	Distributed Computing, Data Processing Pipelines, Data Engineering, Ray, Spark, Lakehouse, Cloud Computing (AWS, IBM), Data Analysis, Visualization Tools, Automation, Debugging, Software Test Engineering, Kubernetes, Docker, Git, GitHub, CI/CD, Data Structures, Algorithms, Linting, and many more

Education

- **Ph.D., Physics, Iowa State University** (May 2011)
- **B.S., Double Major in Physics and Mathematics, Western Illinois University** (May 2005)