Glenn LeBlanc

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Experience

Amazon Web Services - Software Development Engineer Sep. 2022 - Present
Technologies: Java, C, C++, PostgreSQL, Rust, Protobuf, AWS RDS *Palo Alto, CA*
- Developed query planning and query execution hooks inside Amazon's internal PostgreSQL engine fork
- Contributed to data migration microservice for AWS Aurora storage using Debezium and Apache Kafka

Nauto - Data Science Intern Feb. 2022 – Jun. 2022
Technologies: Python, C++, TensorFlow, SQL, PySpark, Databricks, Kalman Filtering *Palo Alto, CA*
- Tuned on-device anomaly detection algorithms to increase test F1 scores by 30%
- Implemented and validated TensorFlow vehicle dynamics model as part of effort to port C++ GPS & IMU sensor fusion algorithm into cloud model
- Developed logging and data analysis software to interface with commercial and in-house GPS and IMU devices

UC Berkeley - Research Intern, Bay Area Neutron Group Nov. 2020 – Aug. 2021
Technologies: C++, ROOT, LaTeX, Nuclear Physics *Berkeley, CA*
- Coauthor for paper *Modeling ionization quenching in organic scintillators* (Materials Advances June 2022)
- Contributed to large-scale C++ data analysis framework to develop Monte-Carlo fitting routine solving longstanding (3+ years) problem group had faced concerning biased model fitting using least squares
- Presented work at 2021 IEEE Nuclear Science Symposium

KBR - Research Intern, NASA Quantum AI Laboratory Jun. 2019 – Aug. 2019
Technologies: Python, NumPy, SciPy, TensorNetwork, Pytest, TravisCI, Quantum Algorithms *Moffett Field, CA*
- Developed package for parameterized tensor network contraction to classically simulate quantum algorithms

Education

UC Berkeley Dec. 2021
BA in Physics and Data Science **GPA: 3.8**
- Relevant coursework: Software Engineering; Algorithms; Data Structures; Data Science; Decision Theory; Machine Learning; Engineering Optimization; Probability Theory; Semiconductor Circuits; Advanced Physics Experimentation Laboratory; Quantum Computing

Teaching

Teaching Assistant Jun. 2020 – Aug. 2020
Berkeley edX *Berkeley, CA*
- Spearheaded reopening of massive open online course in quantum computing with over 40,000 enrolled students
- Assisted students in interactive forum and hosted office hours

Computer Science Mentor Jan. 2020 – May 2020
UC Berkeley *Berkeley, CA*
- Taught weekly group section for data structures course
- Worked with students to identify key areas of weakness and direct review focus accordingly

Student Instructor Aug. 2019 – Dec. 2019
UC Berkeley *Berkeley, CA*
- Developed and managed an introductory course in quantum computing with 17 enrolled undergraduates
- Presented weekly lectures and prepared and graded assessments

Projects

Quantum Simulation Playground | *Julia, TravisCI, Git* Apr. 2021
- Implemented tensor train decomposition for efficient compression of high-rank tensors with limited entanglement entropy; applications in condensed matter physics and machine learning
- Implemented time-evolving block decimation for exponentially faster simulation of 1D quantum systems

Quantum Partial Search | *Python, Pyquil, Forest API, Git* Apr. 2019
- Implemented a variation of Grover's algorithm for unstructured search in sublinear time using a quantum processor

Gitlet | *Java, Git* Dec. 2018
- Architected and implemented a mini version-control system inspired by Git
- Implemented branching, merging, staging, and committing features

Technical Skills

Languages: Java, Python, C, C++, PostgreSQL, Rust, JavaScript, Julia
Libraries: Guice, Lombok, AWS SDK, Protobuf, NumPy, SciPy, Pandas, Matplotlib, TensorFlow, PySpark
Developer Tools: AWS (RDS, IAM, DynamoDB, EC2, S3), Git, GDB, Databricks
Other: Excel, Kalman Filters, Distributed Systems, Database Internals, Design Patterns