Jackson Baxter

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EXPERIENCE

Lawrence Livermore National Laboratory Sep 2024 – Apr 2025
AI Engineer - Internship California (Remote)

- Led a team of 3 engineers to develop a custom Retrieval-Augmented Generation (RAG) system, reducing document search time for researchers from an average of 2 hours to under 5 seconds, saving an estimated $2.86M in annual costs from reclaimed researcher hours and reduced cloud compute expenditure.
- Engineered a serverless data ingestion pipeline using Docling, OpenAI GPT-4o-mini, and Qwen embeddings to process and index complex research documents, increasing data processing throughput by 40% and ensuring model data freshness.
- Improved retrieval accuracy by 35% by implementing a novel contextual embedding strategy, directly enhancing the reliability of the AI-powered Q&A system for mission-critical research.
- Built and deployed an intuitive Streamlit web interface for document interaction, which was adopted by 95% of the target research team within the first month and reduced requests for data retrieval assistance by 80%.
- Stored and indexed embeddings in LanceDB, architecting the vector database schema to optimize for low-latency similarity search, achieving sub-second retrieval speeds for a corpus of over 10 million vectors.

Brigham Young University IT Sep 2021 – May 2025
Student IT Lead - Full-time and Part-time Provo, UT

- Led IT infrastructure upgrades for academic departments, including the migration and optimization of database servers, resulting in a 15% improvement in query performance and system reliability.
- Managed Windows Active Directory for 500+ users, reducing user provisioning time by 25% through streamlined access control protocols.
- Provided technical support and training for university database systems, contributing to a 30% reduction in recurring support tickets.

EDUCATION

Brigham Young University Graduation – Apr 2025
Bachelor of Science: Computer Science (Emphasis in Data Science and Machine Learning) Provo, UT

- **Relevant Coursework:** Advanced Data Structures & Algorithms, Systems Programming, Database Modeling, Statistical Analysis for Machine Learning, Software Engineering.
- **Academic Projects:**
  - **AI-Powered Documentation Query System:** Developed a full-stack RAG application adopted by 100+ students to query technical documentation, improving research efficiency. Implemented a serverless AWS pipeline (Lambda, SQS, S3) and used Bedrock Titan Embeddings with OpenSearch for semantic search.
  - **LLM-Powered SQL Query Interface:** Architected a system using GPT-4 to translate natural language into executable SQL, later deployed to support dozens of small businesses in South America. Enabled non-technical owners to retrieve critical business information, improving data accessibility and decision-making.
- **Honors:** BYU Top Student Scholarship (Merit-based award given to one of 500+ student employees for exceptional academic achievement and on-the-job performance). University of Texas Dallas Cyber Security Award (Summer 2018) (Recognized as the top participant in a competitive high school cybersecurity program). AWS Academy Graduate - Machine Learning & Cloud Foundations, Business Professionals of America State Placement in both C++ Programming and Network Design Team High School Competitions (2017 & 2018)

SKILLS

- **Programming Languages:** Python, Java, Rust, C/C++, JavaScript/TypeScript, R, SQL, HTML/CSS
- **ML & AI:** Retrieval-Augmented Generation (RAG), Large Language Models (LLMs), Text Embedding, Semantic Search, MLOps (CI/CD, Deployment, Monitoring), Supervised & Unsupervised Learning, TensorFlow, Scikit-learn, Pandas, NumPy
- **Cloud & Tools:** AWS (Bedrock, SageMaker, Lambda, S3, SQS, OpenSearch), Docker, Git, Linux, PostgreSQL, LanceDB, Redis