

Berke Kara

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EDUCATION

The University of Texas at Austin

2023 - 2027 GPA: 3.7

- Bachelor of Science in Computer Science
- Minor in Statistics and Data Science
- Texas Cybersecurity Clinic – Applied Cybersecurity Foundations

EXPERIENCE

Idaho National Laboratory

Idaho Falls, Idaho

Software Developer Intern

May 2025 – August 2025

- Developed a full-stack AI Chat assistant website utilizing TypeScript, React, and FastAPI, enabling users to query RAG System for contextual information retrieval.
- Created multiple databases, including Qdrant, Chroma, and Neo4j, leveraging both sparse and dense embeddings for semantic document storage and retrieval.
- Engineered a hybrid Retrieval-Augmented Generation (RAG) system for the website integrating with in-house hosted llms.
- Built PowerBI reports and dashboards for (ESH&Q) division. Designed PowerApps interface for database record entry with integrated PowerBI visualization.

PROJECTS

PintOS

- Expanded a simple OS to include priority scheduling, argument passing on the stack, implemented system calls for user programs, added virtual memory, and converted the existing single-thread file system into a multi-threaded/multi-level indexed file system.

Milk Yield Prediction (ML Competition)

- Placed 1st out of 52 teams by building an ensemble of CatBoost, XGBoost, LightGBM, Random Forest, and a Keras-based neural network with k-fold cross-validation and hyperparameter tuning.

SE LAB

- Developed an ARM system emulator in C, a pipelined processor simulator with hazard control, and an integrated trace-driven cache simulator for a two-level memory hierarchy.

Q-Learning and Association Analysis

- Implemented a reinforcement learning agent using Q-learning to learn to play Snake.
- Built the Apriori-based association analysis pipeline to mine frequent itemsets and association rules.

Classification with scikit-learn

- Built supervised learning pipelines to classify diabetic retinopathy from a 20-feature medical dataset.
- Trained and evaluated multiple classifiers and tune hyperparameters for improved diagnostic accuracy.

SKILLS

Languages C, Python, C++, TypeScript, Java, JavaScript, R, HTML, CSS, React, LaTeX

Databases Qdrant, Chroma, MySQL, PostgreSQL, MongoDB, DynamoDB, Neo4j

Libraries/Frameworks Numpy, Pandas, Faiss, Tensorflow, Scikit-learn, PyTorch, Node.js, FastAPI, CatBoost, XGBoost, LightGBM

Office Suite Microsoft Office Suite, PowerBI, Power Apps, Power Automate

RELEVANT COURSEWORK

- Computer Organization and Architecture
- Principles of Computer Systems
- Data Structures and Algorithms
- Algorithms and Complexity
- Principles of Machine Learning
- Data Management
- Natural Language Processing
- Artificial Intelligence
- Probability and Statistics.
- Elements of Data Science
- Applied statistics