AKSHAT GUDURU

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EDUCATION

University of Central Florida - Expected Graduation: 2027
B.S. Computer Science | B.S. Statistics | Minor: Math

Relevant Coursework
Calc. With Analytical Geometry II/III • Discrete Structures • Big Data Analytics • Statistical Methods I/II/III
Computer Science I/II • Algos for ML • Stats. Theory I • Numerical Calculus • Optimization • Artificial Intelligence

SKILLS

Programming Languages: Python3 • SQL • Java • JavaScript • C • C++ • HTML/CSS
Frameworks & Tools: Django • React TS/JS/Native • REST APIs • AWS EC2/Aurora • Flask • Git
Libraries: TensorFlow • MatPlotLib • Pandas • ReportLabs • OpenCV • PyTorch • Gym • FastAPI • SQLAlchemy

EXPERIENCE

Undergraduate MARL Research Assistant – University of Central Florida | November 2024 – Present

- Collaborated with a research group focused on Multi-Agent Reinforcement Learning (MARL) algorithms working alongside PhD students and faculty principal investigators.
- Developed and compared multiple MARL Policy Evaluation techniques, primarily focusing on the performance of Local Temporal Difference Updates and communication efficient algorithms.
- Used the Petting Zoo API to simulate different environments to test the performance of algorithms, while using performance metrics like Mean Squared Bellman Error and Consensus Error.
- Currently conducting an Honors Thesis into Fault Tolerance in MARL Systems, with extensions into applications in robotics.

PROJECTS

Trading Algorithm — Jul-Aug 2025

- Implemented 90+ technical indicators across 5 categories (trend, momentum, volatility, volume flow, reversal levels).
- Engineered an ETL pipeline pulling company stock data and financials across 10 major US stocks, calculating indicators, and adding to an AWS Aurora PostgresSQL database.
- Built ensemble pipeline combining Random Forest, XGBoost, and LSTM models for pattern recognition, an ARIMA model for enhanced forecasting accuracy, and GARCH volatility modeling for dynamic risk assessment and position sizing.
- Achieved consistent backtesting results with an average Sharpe ratios >1.0 across major stocks
- Developed a data dashboard to keep track of AWS Aurora PostgresSQL database health and monitor ETL pipeline engineering new data.
- Currently working on new model based on Transformer Architecture for Time-Series based data

Automated Basketball Stat Tracker — June 2025

- Used a Raspberry Pi and Aurdino Camera to create an automated basketball stat tracker for our Intramural Basketball team.
- Collected multiple datasets containing imaged and labels of basketballs, players, and referees and wrote an ETL Pipeline to preprocess and combine all into a single labeled unified dataset.
- Fine-tuned a pre-trained YOLOv8 model to better identify players on different teams, the ball, and referees.
- Wrote an action detection script that uses the live feed from the camera and detect events like rebounds, shots, turnovers, travels, and assists based on YOLOv8 identification and movement logic.
- Created a Stats Engine that kept track of the detected actions and compiled stats by players and stored them to a database.
- Reached a 89% accuracy rate when compared with a human keeping track of rebounds, travels, turnovers, and points across 3 games.

Syllabi.AI — Project and Backend Lead– Feb-April 2025

- Led team of 7 student developers in building an intelligent education platform that transforms course syllabi into interactive learning experiences using AI-powered content generation
- Architected and implemented backend infrastructure including MongoDB database design, AWS EC2 server configuration, and RESTful API endpoints
- Developed LLM integration pipeline with OpenAI GPT-4 API for automated generation of course chapters, summaries, and personalized quizzes from uploaded PDF syllabi
- Implemented RAG system using PineconeDB vector database to provide contextual AI tutoring based on students' specific course materials