Cody Kandarian

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Education

Baylor University, School of Engineering and Computer Science — Waco, TX
Bachelor of Science in Data Science — *May 2027*

- **Minor:** Mathematics, Business Administration
- **Coursework:** Data Structures and Algorithms, Machine Learning, Databases, Computer Systems

Experience

Software Engineering Co-op — May 2025 – August 2025
Keysight Technologies — *Santa Rosa, CA (Remote)*

- Developed an **open-source Particle Swarm Optimization framework** for Keysight ADS that significantly reduced RF circuit design time, replacing weeks of manual optimization with automated processing
- Built comprehensive **3D Smith tube visualization tool** using PyQtGraph for real-time optimization trajectory analysis, processing MATLAB data structures with **1000+ data points per frequency** for impedance matching optimization
- Architected modular Python-based optimization engine processing **5D performance arrays** (gain, PAE, output power) across frequency and impedance sweeps, implementing custom fitness functions for RF circuit parameter optimization
- Integrated optimization framework with Keysight ADS through custom file I and O protocols and AEL scripting, enabling automated circuit simulation and parameter extraction workflows
- Presented framework architecture and 3D visualization tools to Keysight RF design team, demonstrating real-time optimization trajectory analysis and stability circle visualization capabilities
- **Technologies:** Python, PyQtGraph, NumPy, Matplotlib, Pandas, AEL

AI Researcher — June 2025 – Present
Baylor SMART Hub — *Waco, TX*

- Built a **Dynamic Spectrum Access (DSA) system** demonstrating real-time interference protection for military radar systems while enabling commercial wireless spectrum sharing in the 3.1-3.45 GHz band
- Implemented spectrum management algorithms combining free space and ITU-R P.2108 clutter loss models, achieving automated power reduction for secondary users
- Developed **Django-based SAS server** handling CBRS standard messaging (registration, grant, heartbeat) with real-time visualization including geographic interference mapping and spectrum waterfall displays
- Collaborated with interdisciplinary research team to design scalable system supporting multiple concurrent secondary users across **350 MHz of spectrum** with 1-second update intervals
- **Technologies:** Python, Django, Pydantic, Matplotlib, NumPy, SciPy, Geopy, Contextily

Projects

AI Stock Sentiment Tracker — Aug 2025 – Present

- Built **full-stack AI-powered stock analysis platform** processing daily news articles using OpenAI GPT-3.5-turbo for sentiment analysis with Express.js backend
- Implemented intelligent sentiment scoring system analyzing financial news headlines and generating bullish, neutral, and bearish investment recommendations using **natural language processing**
- Developed React and TypeScript dashboard with interactive sentiment timeline charts, real-time stock price integration, and mobile-responsive design using TailwindCSS
- Created **automated daily data pipeline** integrating News API and Alpha Vantage for stock data collection, with MongoDB storage and error handling for stock watchlists
- **Technologies:** React, TypeScript, Node.js, Express, OpenAI API, MongoDB, TailwindCSS

Technical Skills

Languages: Python, R, SQL, C++, JavaScript
Frameworks: Django, FastAPI, React, Node.js, Express
Libraries: NumPy, Pandas, Matplotlib, PyTorch, TensorFlow, SciPy
Tools & DevOps: Docker, Git, pytest, GitHub Actions, ChromaDB
Databases: PostgreSQL, MongoDB, ChromaDB, FAISS