Colin Kirby

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Education

University of Central Florida *(GPA 3.78 / 4.0)* *August 2021 – May 2025*

Bachelor of Science in Computer Engineering *Orlando, FL*

Honors & Awards: Dean's List 2021 , President's Honor Roll 2023 – 2025 , Pegasus Gold Scholarship

Clubs & Extracurriculars: AI @ UCF , Knight Hacks , SHPE @ UCF

Relevant Coursework: Massive Storage & Big Data, Enterprise Computing, Object-Oriented Software Design

Experience

Software Engineering Intern May 2024 – June 2025

BitGo | *Python, Django, React, PostgreSQL, AWS EC2* *Remote*

- Developed a full-stack automation platform (Django REST + React) integrating OAuth SSO and role-based access, streamlining 20+ internal IT workflows.
- Automated backend task scheduling with Celery and Redis, saving ~150 staff hours annually and improving reliability through fault-tolerant design.
- Deployed containerized microservices on AWS EC2 (Docker, Nginx, Gunicorn) with monitoring and scaling for high-availability performance.
- Partnered with product, design, and compliance teams to deliver production-ready dashboards, improving data visibility and decision speed.

Projects

SentimentTrader – Real-Time Stock Sentiment Pipeline | *Python, SQL, FinBERT, XGBoost*

- Built an end-to-end NLP and ML pipeline processing 1,000+ Reddit finance posts per run, integrating entity resolution to reduce ticker false positives by ~85%.
- Engineered 40+ predictive features per ticker using sentiment scores, engagement metrics, and price deltas for trend forecasting.
- Trained and evaluated multiple models (FinBERT, XGBoost), achieving 55–70% ROC-AUC on stocks like TSLA and NVDA.
- Automated daily collection, preprocessing, and inference pipelines for real-time sentiment analytics and prediction generation.

ShelfVision – Dense Retail Shelf Object Detector | *PyTorch, ResNet-50, FPN*

- Built a custom anchor-based object detection model for SKU-110K (11K+ images, ~147 objects/image) using a ResNet-50 + FPN backbone optimized for dense retail layouts.
- Implemented dynamic IoU-based anchor matching, loss balancing, and multi-scale feature extraction, resolving baseline collapse and enabling measurable convergence.
- Achieved 19 true positives, 0.0069 mAP, and ~0.38 IoU on test data—outperforming YOLOv5 and demonstrating feasibility of domain-specific detection for cluttered shelves.

Centi – Personal Finance App | *FastAPI, React, PostgreSQL, Plaid API* | *https://centi.dev*

- Designed and deployed backend ETL workflows and REST APIs integrating financial data from 3+ Plaid sources into normalized analytics dashboards.
- Implemented real-time account and spending insights, with query optimization improving data retrieval speed by 40%.
- Developed responsive React dashboards with secure OAuth/JWT authentication and automated CI/CD for 99% uptime.

SecureScape – Portable Smart Security System | *Python, Flutter, Arduino C++, TensorFlow Lite*

- Built web and mobile interfaces for real-time IoT monitoring and on-device ML-based person detection (ESP32-CAM).
- Designed backend communication achieving **<3.5 s latency** and 25% reduction in false alerts across distributed nodes.
- Optimized TensorFlow Lite model inference for reliable detection and energy-efficient operation.

Skills

Languages : Python, JavaScript, SQL, HTML, CSS

Frameworks : React, FastAPI, Node.js, TensorFlow Lite, XGBoost

Data Tools : Pandas, NumPy, PostgreSQL, MySQL, Matplotlib, Scikit-learn

Focus Areas : Data Engineering, Machine Learning, Predictive Modeling, Full-Stack Development