

# Shivaganesh Nagamandla

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## EDUCATION

### University of Central Florida

Bachelor of Science - Computer Science (GPA: 3.3/4, Bright Futures Scholar)

Orlando, FL

Apr. 2026

## EXPERIENCE

### Lead Software Developer

*Knights Experimental Rocketry Club*

Apr. 2025 – Present

Orlando, FL

- Developed React dashboards with uPlot and WebSockets for live visualization of 12 rocket sensor streams at 60Hz.
- Built Node.js WebSocket server with QuestDB time-series integration, processing 100,000+ data points per static fire test from ADS1256 chips over 4,400-ft Ubiquiti link.
- Implemented GPIO relay control logic within Python TCP server, enabling remote actuation of 8 propellant valves on Raspberry Pi test stand.
- Reduced setup time by 80% by creating unified Bash script to automate deployment of 6+ services across local and remote subsystems via SSH.

### Software Engineer Intern

*Oasis Social*

May. 2025 – Aug. 2025

Orlando, FL

- Developed Django recommendation API with PyTorch Geometric, achieving 94% accuracy in surfacing personalized travel content for 500 users across 1,500 posts.
- Built PostgreSQL data pipeline processing 8,000+ interactions with feature extraction and graph construction, generating high-quality Graph Neural Network training data.
- Integrated OpenAI GPT-4 API generating multi-day itineraries with automated budget optimization across 5 expense categories enabling data-driven booking decisions.

### Software Engineer Intern

*Hexaider Technologies*

May. 2024 – Aug. 2024

Maitland, FL

- Developed Spring Boot APIs within a flight reservation microservice, achieving a 28% increase in transaction success rates during peak booking windows.
- Engineered a solution to convert Kafka flight event streams into structured updates for a React.js dashboard.
- Managed 6 GitLab CI configurations, minimizing build overhead for airline microservices by 25%.

## PROJECTS

### AgentGuard (Sharkbyte 2025) | *React, TypeScript, Node.js, Express, PostgreSQL, Redis, Gemini*

Nov. 2025

- AI-powered security testing platform that red-teams AI agent system prompts for 6 vulnerability types and returns structured security reports.
- Built dual-model prompt engineering pipeline with Gemini 2.5 Pro for attack simulations and auto-remediation.
- Implemented async vulnerability scanning with Redis job queue processing and worker for system prompt analysis.

### KnightMobile (Knighthacks 2025) | *Python, FastAPI, YOLO, Google ADK, OpenCV, React, Arduino*

Oct. 2025

- Built autonomous robot car that navigates to user-specified objects using LiDAR mapping, YOLO11n detection, Gemini decision-making, and D\* Lite pathfinding.
- Created a sensor-fusion pipeline that builds LiDAR occupancy grids and OpenCV-based depth maps.
- Developed FastAPI backend with WebSocket streaming for LiDAR ingest and bidirectional Arduino motor control.
- Implemented Google ADK navigation agent with tool-calling for autonomous replanning.

### LyricLingo | *React, Node.js, MongoDB, Express, Redis, Cheerio, JavaScript*

Jan. 2025 - Mar. 2025

- Developed a full-stack language learning app leveraging Spotify, Genius, and DeepL APIs with JWT authentication, enabling real-time lyric translations in 9+ languages at 95% accuracy.
- Engineered a custom language auto-detection and lyric deduplication algorithm, reducing external API costs by 40%.
- Achieved 93% load time reduction via Redis caching for flashcards and sentiment analysis.

## TECHNICAL SKILLS

**Programming Languages:** Python, Bash, Java, JavaScript, TypeScript, C, C++, C#, SQL, HTML, CSS

**Cloud:** Amazon Web Services, Microsoft Azure

**Libraries/Frameworks:** React.js, Next.js, Node.js, Prisma, Spring, ADK, PyTorch, NumPy, Pandas, .NET, Angular

**Developer Tools:** Git, Linux, Raspberry Pi, Docker, Postman, Jira, Visual Studio, CLion, Eclipse