Sebastian Noel

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Education

University of Central Florida — Orlando, FL
Bachelor of Science in Computer Science; Minor in Robotics — *May 2028*

Organizations: Knight Hacks (Mentor, Outreach), Graphics Programming Knights (Co-founder, Software Engineer Lead, Secretary), ColorStack

Experience

Software Engineer Intern — Aug 2026 – Present
Bank of New York — *Orlando, FL*

- Provisioned **Azure VMs** with **Terraform** to host **5 Spring Boot** services via **Docker Compose** for repeatable builds.
- Balanced traffic across **2 VMs** using **Azure Application Gateway** load balancing and health probes for node failover.
- Reduced fund-query database reads by **40%** via **Azure Managed Redis** caching, easing **PostgreSQL** load during valuation.
- Instrumented **5** services with **Prometheus** and **Grafana**, enabling health tracking at **15s** intervals with **200h** retention.

Software Engineer Intern — Jan 2026 – Apr 2026
Bank of New York — *Orlando, FL*

- Architected **4-stage** fault-remediation agent pipeline in **Python**/**FastAPI** and **Docker**, handling **10+** fault types end-to-end.
- Sped up fault detection **75%** by parallelizing **Prometheus**, **Grafana**, and **Docker SDK** across **5 Java Spring Boot** services.
- Achieved **sub-90s** microservice health remediation by routing edge cases to **LLM** fallback, persisted to **PostgreSQL**.
- Trained **IsolationForest**, **RandomForest**, and **XGBoost** on **4,250** samples to classify **6** microservice fault types.

Undergraduate Researcher — Jan 2026 – Apr 2026
UCF Institute of Artificial Intelligence — *Orlando, FL*

- Co-authored an **ECCV 2026** paper (**2,883**/10,473 **accepted**) on a **Frame Forgetting Network** for **Test-Time-Training**.
- Optimized long-form video segmentation by eliminating redundant sliding-window computations to only **3 frames** per update.
- Established ground-truth evaluation baselines across **2.5 M** frames (**47** videos) using **SAM 3** and **Slurm** on an **HPC** cluster.
- Automated **COCO** and **RLE** data parsing through **Python**/**PyTorch**/**Bash** pipelines to standardize research preprocessing.

Software Engineer Lead — Jul 2025 – Present
Graphics Programming Knights — *Orlando, FL*

- **Co-founded** a graphics programming student organization, growing membership to **200+** through outreach and events.
- Led **10 developers** to build the organization's website with **TypeScript**/**Next.js** and to enhance member engagement.
- Reduced website deployment by **25%** via **Docker** and **GitHub Actions CI/CD**, keeping club content reliably up to date.

Projects

Permanence | *Python, C++, JavaScript, Jetson Orin Nano, Arduino, PyTorch, TensorRT, YOLOE, Three.js*

- **Awarded 1st Overall** out of **212**, **1st** out of **21** for **NVIDIA**, and **1st** out of **78** for **Hugging Face** at Knight Hacks IX.
- Engineered a **LiDAR** rover to map **18** views in **25**s for 3D object memory and navigation on an **8 GB Jetson Orin Nano**.
- Cut **Qwen-3D** memory **37%** (**7.1** to **4.5** GB) via custom **PyTorch INT8 quantization** to enable 3B-model inference locally.
- Sustained **15** FPS tracking through occlusion with a **22 MB YOLOE TensorRT FP16** engine and custom 3D logic.
- Developed a **Three.js** x-ray dashboard with **5** object states and **4.5**s **Qwen-3D** queries for voice-guided navigation.

Recall | *Python, C++, TypeScript, ESP32, YOLOv8, SQLite, ChromaDB, Next.js, Gemini, ElevenLabs*

- **Awarded 2nd Best Overall** out of **85** projects submitted for the HackUSF 2026 Hackathon.
- Deployed **YOLOv8** and **Gemini 2.5 Flash** vision pipeline, achieving **95%** accurate scene descriptions for semantic search.
- Designed dual-**ESP32** camera + mic wearable in **C++**, streaming MJPEG and 16kHz PCM over WiFi to a **Python** backend.
- Stored AI memories in **SQLite** and **ChromaDB** with vector embeddings, enabling natural-language retrieval via **Next.js** UI.

Greghouse | *C++, JavaScript, ESP32, Arduino, React, Node.js, WebSockets, AWS Lambda, DynamoDB, API Gateway*

- **Awarded 3rd Best Overall** out of **86** projects submitted for the BloomKnights 2026 Hackathon.
- Instrumented **ESP32** firmware in **C++** posting soil reads every **2s**, cutting **POST** latency **85%** via keep-alive **TLS**.
- Orchestrated an **AWS API Gateway**, **Lambda**, **DynamoDB** pipeline ingesting **1,800** readings/hr via a cached proxy.

Technical Skills

Programming Languages: Python, Java, C++, C, TypeScript, JavaScript, SQL, Bash, HTML/CSS
Frameworks & APIs: React, Next.js, Node.js, FastAPI, Spring Boot, PyTorch, REST APIs, WebSockets
Cloud & Infrastructure AWS, Azure, Docker, Terraform, GitHub Actions (CI/CD), Git, Linux, Prometheus, Grafana
Databases & Embedded Systems: PostgreSQL, Redis, DynamoDB, SQLite, ESP32, Arduino, NVIDIA Jetson