

Kai Sprunger

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EDUCATION

University of Central Florida, Burnett Honors College

Orlando, FL

Bachelor of Science in Computer Science, GPA: 3.7

Expected graduation: May 2028

EXPERIENCE

Software Engineer Intern

May 2026 – Aug 2026

NVIDIA

Santa Clara, CA

- Made **agentic AI Python pipeline** to develop MISRA/CERT violation fixes and write deviations for **70+ files**.
- Made **Jenkins** pipeline to flag MISRA/CERT violations and post suggestions on **GitLab** MRs, blocking **50+ regressions**.
- Fixed **600 violations**, authored **900 deviations**, cutting MISRA/CERT-C findings from **1,800 to 200**, an **89% drop**.
- Built **Python** script to scan for **Coverity** violations, apply profile and ruleset configs, and produce **HTML/CSS** reports.

Software Engineer Intern

Jan 2026 – Apr 2026

Bank of New York Mellon

Orlando, Florida

- Made **4-agent** observability pipeline for **AppDynamics**, **Grafana**, **Prometheus** that resolved **500+ injection attacks**.
- Trained **Isolation Forest** model on **4,000+ points** over **8 features** and **300+ trees** to flag **latency** and **Docker** faults.
- Built **Random Forest + XGBoost** model to classify **6 fault causes** with **85% accuracy**, automating **70%** of paths.

Software Engineer Intern

May 2025 – Aug 2025

NVIDIA

Santa Clara, CA

- Wrote **10,000+ C** microkernel tests across **230 RISC-V OS** functions, raising line coverage from **77.7% to 97.1%**.
- Shipped **4 features** for **8 critical inter-process communication and thread-local storage bugs** to production.

Software Engineer

Aug 2024 – Apr 2026

IEEE @ UCF

Orlando, FL

- Led **25-developer** team for **4 products**, boosting output by **600%** via DevOps, GitHub workflows, and ticketing.
- Developed **6 React/Tailwind** pages and **35 frontend components**, deploying the **full-stack website** on **Vercel**.
- Deployed **PostgreSQL/Drizzle ORM** database and built **Discord OAuth** authentication system for **100+ users**.
- Made **39 tRPC** backend endpoints over **7 routers**, backing **CRUD** for **100+ users**, **200+ events**, and **6 projects**.

PROJECTS

Agentic Nuclear Reactor (HackUSF 2026 Winner) | *Google ADK, Gemini, FastAPI, WebSocket, Arduino* Mar 2026

- **1st Overall & Google Cloud Winner** from **80+ teams**: agentic pipeline regulating a reactor's electrostatic fields.
- Implemented a **15-rule Gemini** decision tree with **Python safety overrides** and meta-agent tuning of operating limits.
- Made an **analysis agent** to detect beam instability through **EWMA**, **COV**, **integral error**, and **rate-of-change**.
- Integrated **Python** serial control with an **Arduino** for MCP4728 DAC voltage output and **WebSocket** telemetry.

SignHero (SwampHacks 2026 Winner) | *React, TypeScript, WebSockets, tRPC, MongoDB*

Jan 2026

- **2nd Place Overall & Best Game Design Winner** from **110+ teams**: ASL rhythm game using machine learning.
- Built type-safe **tRPC**, **Prisma**, and **MongoDB** services managing player creation, validation, results for **50+ players**.
- Made mistake tracker with **React hooks**, **Tailwind**, **WebSocket**, effectively showing missed signs for **150+ rounds**.
- Used **tRPC** routes, **webhooks**, **Prisma**, **MongoDB** for beatmap creation and used **React**, **Tailwind** for song carousel.

Pipelined RV32I Microprocessor (EEL4768) | *Verilog, C++*

Jan 2026 – Apr 2026

- **Top 10% cycle count**: Built a pipelined RV32I processor with EX-EX, MEM-EX, and MEM-MEM forwarding.
- Implemented **N-way write-back cache** with **LRU/PLRU replacement**, dirty bits, write allocation, and prefetching.
- Developed **C++ assembler** supporting RV32I instruction formats, symbol resolution, immediates, and hex/binary output.

CappuConnect (STEM Connect 2025 Winner) | *MongoDB, Next.js, React, TypeScript, Puppeteer*

Sept 2025

- **Winner of Best Non-AI Hack** from **30+ teams**: Networking app with vector-based event suggestions.
- Built **MongoDB REST APIs** for member/event CRUD and integrated **NextAuth** authentication for **160+ accounts**.
- Implemented **TypeScript** **vector-similarity ranking** for **600+ scraped events**, personalizing recommendations.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, C, C++, C#, SQL, Verilog, Assembly (RISC-V, MIPS), Kotlin

Frameworks: React, FastAPI, Spring Boot, Next.js, Node.js, Express.js, Tailwind, tRPC, Google ADK, WebSocket, Vue

Libraries: scikit-learn, NumPy, Pandas, PyTorch, OpenCV, Selenium, Playwright, Drizzle, Prisma, Mongoose, Matplotlib, XGBoost, Puppeteer, NextAuth, pyserial

Tools: MongoDB, PostgreSQL, SQLite, Neon, Git, Visual Studio Code, Perforce, Docker, Xcode, Android Studio, Vercel,

Figma, Jira, Unity, Jupyter Notebook, Grafana, Prometheus, Arduino, Raspberry Pi, Godot, AppDynamics, Jenkins, Supabase