

# Jack Stoltz

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## EDUCATION

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### Georgia Institute of Technology

*BS Computer Engineering | Concentrations: Systems Architecture & Distributed Systems*

Coursework: Computer Architecture, Operating Systems, Machine Learning, Object-Oriented Programming, Data Structures & Algorithms, Probability & Statistics, Processor Design, Advanced Programming Techniques, Discrete Mathematics

December 2027

GPA: 3.71/4.00

## EXPERIENCE

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### AMD

*CPU Performance Engineer Intern - Client SoC Architecture Team*

May 2026 – Present

Austin, TX

- Architected a natural language agent querying a 47M-document MongoDB sim database, cutting analysis time by 95%
- Built stat extraction pipeline with SQLite caching automating IPC uplift computation across CPU arch experiment pairs
- Shipped an interactive cross-SoC performance dashboard deployed on AMD's regression infrastructure
- Profiling inference, gaming, and productivity workloads to identify CPU and memory subsystem bottlenecks

### Intel

*Software Engineer Intern - GPU Validation Infrastructure Team*

Jun 2025 – Dec 2025

Chandler, AZ

- Engineered an end-to-end Python data pipeline to validate PSMI signal integrity through the GPU memory fabric
- Standardized pipeline reuse across GT/SM and Graphics SoC clusters, cutting debug time for validation engineers by 60%
- Integrated pipeline into Intel's CI/CD regression framework, enabling scalable nightly runs across 100+ test scenarios
- Troubleshoot regressions for Nova Lake SoC, verifying stability of AI-accelerated compute and memory systems

### AquaBots Lab (VIP) @ Georgia Tech

*Lead Undergraduate Researcher - Computer Vision Team*

Jan 2026 – May 2026

Atlanta, GA

- Spearheaded a 6-person team in designing and implementing computer vision pipelines for salmon detection & classification
- Enhanced YOLOv8 with depth channels, boosting salmon detection mAP by 20% in underwater field videos
- Designed and trained a custom PyTorch CNN for depth-contour extraction, enabling real-time fusion with YOLOv8 output
- Evaluated fish scale classifiers with AlexNet & 2-stream architectures, achieving 80%+ accuracy on lab-annotated datasets

### College of Engineering @ Georgia Tech

*Teaching Assistant - Computer Architecture (ECE 2035)*

Jan 2026 – May 2026

Atlanta, GA

- Delivered recitations to 60+ students teaching dynamic memory allocation, register-level execution, & HW/SW interaction
- Held office hours weekly guiding students in debugging C++ memory faults, RISC-V assembly, and microcontroller projects

### BrainBoost (VIP) @ Georgia Tech

*Undergraduate Researcher - AI/Software Team*

Jan 2025 – May 2025

Atlanta, GA

- Built Python NLP pipeline with NLTK parsing student math input into ASTs, classifying operators, operands, & identifiers
- Architected React frontend & SQL persistence layer enabling students to define & manipulate symbolic expressions
- Presented pipeline architecture and results at Georgia Tech VIP Symposium to faculty and experienced industry judges

## PROJECTS

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### Multithreaded OS Scheduler | C, pthreads, Linux

Apr 2026 – May 2026

- Implemented core scheduler logic in C coordinating up to 16 concurrent CPU threads through a shared ready queue
- Built thread-safe queue with pthread mutexes and condition variables, blocking idle threads to eliminate busy-waiting
- Designed FIFO & Round-Robin policies with fine-grained locking across mutexes preventing deadlock & reducing contention

### Offline RAG System (Hermedoc) | Python, LLaMA, LlamaIndex, Flask

Nov 2025 – Jan 2026

- Designed a secure offline RAG system enabling DoD-restricted industries to query private data locally via LLaMA
- Generated embeddings with Hugging Face + LlamaIndex and managed local vector database for contextual retrieval
- Developed cross-functional React + Flask UI, streamlining data upload and chatbot interaction for non-technical users

### Vision-Controlled Robotic Arm | Python, C++, OpenCV, Arduino

Oct 2024 – Nov 2024

- Implemented gesture recognition with MediaPipe and OpenCV, enabling webcam-based control of the arm's axes
- Interfaced Python vision pipeline with Arduino C++ firmware, allowing seamless actuation of servo motors from gestures

## TECHNICAL SKILLS

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**Languages:** Python, Java, C, C++, C#, JavaScript/TypeScript, HTML5/CSS

**Frameworks & Libraries:** ReactJS, NodeJS, Flask, OpenCV, Pandas, PyTorch, TensorFlow

**Tools & Platforms:** Git/GitHub, Unix/Linux, PostgreSQL, MongoDB, SDLC, Excel, Agile, Azure, Docker, AWS