Benjamin Carter

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A second-year PhD computer science student at UCSB specializing in systems for digital twins and physical AI. Researching systems that couple resource-constrained devices on the edge with high-performance computing for novel applications of AI.

SKILLS

Python	Distributed Systems	Self-Learner
C	Agile Development	Like to Teach

EDUCATION

PhD Student of Computer Science, University of California, Santa Barbara *Sept 2025 – June 2030**

- Researcher in Lab for Research on Adaptive Computing Environments (RACELab).
- Pursuing distributed systems and fault-tolerant IoT-to-cloud integration.
- Focusing on "multiscale" systems (embedded + cloud combined) for AI+science applications.

BS in Computer Science with Emphasis in Big Data Analytics, Grand Canyon University *Sept 2021 – Apr 2025*

- Graduated *summa cum laude,* 4.0 GPA, Honors College Member.
- Received scholarship to serve as peer chaplain in four residence halls over three years.
- Acted as a liaison between different student-organized activities and administration.

JOB EXPERIENCE

DoE Research Intern: Genesis Mission, Princeton Plasma Physics Laboratory, NJ. *Summer 2026*

- Designed, built, and spearheaded a novel digital twin framework for AI-for-science workflows.
- Framework ties together streaming data, AI surrogate modeling, and HPC simulations for real-time decision making.
- Ran experiments on Perlmutter, a leadership class supercomputer.

Teaching Assistant, University of California, Santa Barbara *Oct 2025 – Ongoing*

- Teaching a course on operating systems to undergraduates.
- Received a midterm student rating of 4/4 on subject knowledge, preparation, and question answering.

Software Engineer Intern, Benchmark Electronics, Tempe, AZ. *Summer 2023*

- Ran experiments to minimize energy consumption on 4G cellular embedded devices.
- Created a debugging tool to capture logs asynchronously from embedded devices.
- Tool used to diagnose an actual client's project, discovering several bugs in production.
- Tool recommended by VP of Engineering and also received recognition from C-Suite team for professionalism.

NOTABLE PROJECTS (Check out more projects available on my website)

Second Author in IEEE Research Paper on AI+Science, UC Santa Barbara, CA. *Feb 2026 – Dec 2026*

- Features an hybrid online/offline architecture that enables real-time physical inference with adaptive learning.
- Paper Title: "GrowFlow: Low-latency Computational Fluid Dynamics at the Edge for Real-time …"
- Accepted in the *IEEE Smart Connected Systems and Emerging Technologies Conference 2026.*

StarfishOS: A P2P Dataflow Runtime, Grand Canyon University, Phoenix, AZ. *2024 – 2025*

- Built a peer-to-peer dataflow runtime system in Python using DHTs.
- Project selected by the College of Engineering to showcase to university admin. Earned praise from univ. president.

First Author in IEEE Research Paper about SWE/AI, GCU, Phoenix, AZ. *2024 – 2025*

- Introduced an architecture that combined AI with AST parsing to classify PRs on GitHub.
- Paper Title: "SkillScope: A Tool to Predict Fine-Grained Skills Needed to Solve Issues on GitHub".
- Published in the *4th International Workshop on NL-based Software Engineering (NLBSE) (in ICSE/IEEE).*

Co-Founder, Software Developer, Full Stack Developer, "SchedulED", Phoenix, AZ. *2019 – 2022*

- Built a web application with a team of three in high school to manage tutoring for our school of 3k.
- Put to use at our school, scheduling over 20,000 tutoring sessions in one year.
- Presented to and received praise from a district governing board member.

* Expected