James Hurd

jmh@ku.edu | jameshurd.net | LinkedIn: jameshurd2718 | GitHub: @alexacallmebaka |

Education

University of Kansas (KU) School of Engineering *3.96/4.0 GPA* Expected Graduation: May 2025
Bachelor of Science in Computer Science with a minor in Mathematics and certificate in Cybersecurity
Member of Upsilon Pi Epsilon Honors Society and University Honors Program

Technical Skills

Languages:	Python, Bash, SQL, Haskell, C, C++, JavaScript, LaTeX, Coq, Awk
Developer Tools:	GNU/Linux, Git, Cloud, Docker, Kubernetes, CI/CD, InfluxDB, Grafana, TCP/IP, DNS, REST API
Concepts:	Algorithms, Data Structures, HPC, Distributed Systems, Concurrency, Agile, Test-Driven Development
Mathematics:	Linear Algebra, Graph Theory, Combinatorics, Optimization, Abstract Algebra, Number Theory

Internship Experience

Pinnacle Technology, Lawrence, KS May 2024 — Now
Software Engineering Intern

- Create scalable API to stream from many embedded systems in parallel, reading 14,000 samples per second from each device.
- Architect and implement innovative and user-customizable dashboard for in-situ visualization and analysis of time series data.
- Performed strong and weak scaling studies to determine most effective way to parallelize data collection workloads.

KU Electrical Engineering and Computer Science Department, Lawrence, KS Aug 2022 — Now
Lecture Assistant

- Teach fundamental techniques, data structures, and algorithms to class of over 100 students in Programming I/II.
- Mentor underclassmen and connect them with student organizations, research opportunities, and projects across campus.

Zeroeyes, Remote May 2023 — Aug 2023
Research and Development Software Engineering Intern

- Refactored image processing pipelines to use distributed computing, enabling a 10x speedup and decreased infrastructure costs.
- Collaborated with stakeholders to align project goals, determine requirements, and adapt to constraints in fast-paced environment.
- Contributed code to extend the functionality of Dask, a leading open-source Python parallel computing framework.

Los Alamos National Laboratory, Los Alamos, NM May 2022 — Aug 2022
Data Science at Scale Intern

- Designed and implemented lightweight provenance capture system to enable reproducible high-performance computing workloads.
- Optimized containerized simulations to be 1.5x faster than bare-metal reference suite using hardware interface metadata.
- Doubled the speed of ingesting raw simulation results into dynamic web dashboard for use by cross-disciplinary stakeholders.

Leadership Experience

HackKU May 2022 — Now
Director, Vice-Director (Fall 22 — Spring 24)

- Spearhead organization of KU's largest hackathon to date, with 400 participants and 11 corporate partners in 2024.
- Created bespoke ticketing system to streamline mentorship, doubling the amount of attendees who received assistance.
- Designed a scalable, robust pipeline for scoring projects resulting in a 2x speedup of the judging process.

SELF Engineering Leadership Fellows Program Aug 2021 — Now
Fellow, Cohort Lead (Spring 21 — Spring 23)

- Developed tools to automate logistical tasks for engineering competition, enabling a fast-paced Agile planning environment.
- Produced shell scripts to automate e-mail announcements to new fellows, maximizing productivity of 1st year orientation team.
- Advocated for peers as cohort lead in meetings with SELF staff, honored with "Communication Pillar Award".

KU Association For Computing Machinery May 2022 — Aug 2024
President

- Led weekly meetings featuring industry engineers, professors, and peers for 40 members, a 400% increase in attendance.
- Oversaw executive board in planning events, marketing, fundraising, planning trips, and managing a budget of $8,000.

SC23 Student Cluster Competition Nov 2022 — Nov 2023
Team Founder and Deputy Lead

- Analyzed and tuned performance of high-performance computing benchmarks, applications, and workflows.
- Collaborated with mentors and vendor partners to design and build GPU-accelerated supercomputing cluster from scratch.
- Recruited dynamic, cross-functional team of students and trailblazed KU's first appearance in a cluster competition.

Publications

Quincy Wofford, **James Hurd**, Hugh Greenberg, Patrick G. Bridges, and James Ahrens. "Complete Provenance for Application Experiments with Containers and Hardware Interface Metadata". In: *2022 IEEE/ACM 4th International Workshop on Containers and New Orchestration Paradigms for Isolated Environments in HPC (CANOPIE-HPC)*. 2022, pp. 12–24. DOI: 10.1109/CANOPIE-HPC56864.2022.00007