Caleb Kang

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Education

University of Illinois Urbana-Champaign (UIUC) Aug 2026 - May 2028
Bachelor of Science in Computer Science
Grainger Engineering Pathways: Guaranteed Admission to Grainger College of Engineering

William Rainey Harper College Aug 2024 - May 2026
Associate in Engineering Science | GPA: 4.0/4.0

Activities and Awards: Motorola Solutions Engineering Pathways Scholarship, Full-Ride Scholarship, Computer Science Club, Society of Engineers, Honors Society, President's List

Relevant Coursework: Computer Science I & II, Data Structures & Algorithms, Linear Algebra, Discrete Mathematics, Differential Equations

Technical Skills

Languages: Java, Python, C++, TypeScript, JavaScript, HTML/CSS
AI & Machine Learning: PyTorch, Generative AI, LLMs, CLIP, Whisper, Sortformer
Developer Tools: Git, GitHub, Docker, Linux, React.js
Cloud: Google Cloud Platform (GCP)

Experience

Fermi National Accelerator Laboratory, Batavia, IL Jun 2025 – Aug 2025
Software Development Intern

- Engineered a Python state machine to automate ASIC chip testing for the Deep Underground Neutrino Experiment (DUNE), scaling infrastructure across six national sites to validate ≈300,000 chips.
- Designed a comprehensive UML state diagram to map logical flow and transition states, ensuring robust error handling prior to implementation.
- Authored a technical research report and delivered findings to scientists and academics via poster sessions and virtual reviews, detailing testing methodologies and system architecture.

Harper College, Palatine, IL Aug 2024 – Present
Student Aide

- Examined faculty syllabi for accuracy and compliance, directly supporting curriculum documentation required for institutional transfer agreements.
- Optimized administrative logistics by managing inventory, coordinating campus-wide equipment distribution, and serving as a frontline resource for student navigation and inquiries.

Projects

C++ Farming Simulator Oct 2025 – Dec 2025

- Architected a terminal-based simulation game using object-oriented principles (inheritance, polymorphism) to model complex crop lifecycles and interactions.
- Implemented a dynamic 2D grid system using vectors of pointers, utilizing manual memory management to efficiently handle object allocation and deallocation during gameplay state changes.
- Engineered a comprehensive suite of unit tests using the Catch2 framework to validate game logic, ensuring stability across edge cases in player movement and resource calculation.

Duckiebot Robotics Initiative Dec 2024 – Jan 2025

- Spearheaded a 4-person team in the development of a robotic rover, managing project roadmap and coordinating weekly technical sprints.
- Configured embedded Linux (Ubuntu) environments on Raspberry Pi and NVIDIA Jetson hardware, troubleshooting kernel-level networking and terminal configurations.
- Deployed the Duckietown robotics framework using Docker containers, successfully establishing command-and-control connectivity with the rover.

Research

Biola University (Remote)
Research Assistant Oct 2024 – May 2025

- Validated multimodal authentication models by fine-tuning and deploying CLIP, Whisper, and Sortformer architectures.
- Executed NVIDIA NeMo model performance testing in Google Colab using PyTorch to assess viability for security applications.