Jean Bae

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Education

Cornell University Expected May 2028
Bachelor of Science in Computer Science (GPA: 3.72/4.00) *Ithaca, NY*

Technical Skills

Languages: C, Assembly (RISC-V, x86), Python, Java
Technologies: Linux, SQL/PostgreSQL, FastAPI, AWS, Jax, PyTorch, Docker, CI/CD (GitHub Actions), Git, zsh

Experience

Genies May 2026 – Aug 2026
Software Engineer Intern *Los Angeles, CA*

- Gathered requirements from the data labeling team and built a multimodal data evaluation system in **Python** that automates manual review, generating structured preference, factuality, entity, audio, and video judgments with up to 100 **Docker**-isolated agents autoscaled on **AWS** (ECS)
- Automated data collection through Playwright pipelines that converted raw text, images, audio, video, PDFs and archived browser artifacts into parsed evaluation inputs using **LLMs**
- Built a **FastAPI/PostgreSQL** control plane that let operators manage concurrency, enforce spending and rate limits, and recover from failures, giving the ops team visibility and control over continuously running automated evaluation system

Computational Mechanics & Scientific AI Lab (CoMSAIL) - JXWang Aug 2025 – Present
Undergraduate Researcher *Ithaca, NY*

- Designed an agentic (**Jev**) framework in **Python** and **JAX** that searches for aerial-vehicle designs on multi-parameter inverse physics problems whose objectives are non-differentiable (discrete design choices and domain-specific constraints)
- Enabled the agent to navigate trade-offs among conflicting requirements (turbulence, lift, stability, efficiency) and produce a set of candidate designs, since no single objective captures all constraints
- Built an evaluation pipeline that pairs differentiable JAX physics solvers with domain-specific realism checks, so the agent's proposals are scored on physical validity and unrealistic designs are filtered out

Projects

Fair GPU Scheduler for Bursty Workloads in Linux DRM Scheduler | *C, Python, Linux Kernel (drm_sched / amdgpu), eBPF*

- Built a new GPU scheduler in **C** for the **Linux kernel** that keeps sudden animations and app launches smooth while games or other heavy apps are running.
- Validated on AMD APUs, it cut stutter delays by 8% with less than 1% performance drop-off for the heavy apps
- Built measurement tools in **Python** and **eBPF** that traced every GPU task through the kernel and wrote a test app in **C** and **Vulkan** that produces animation bursts with precisely measured timing.

Cache Hierarchy Simulator for Intel CPU | *C, Python, Linux*

- Built a trace driven **C** simulator of Intel i7-12700K hybrid cache hierarchy.
- Developed a **Python** tool that measures real cache behavior with hardware performance counters.
- Validated the model on SPEC CPU2017/GAP workloads, predicting cache misses within 6% median error and identifying the source of the remaining error

Hookit: Webhook Delivery Platform | *Python, FastAPI, PostgreSQL, SQLAlchemy, Alembic, Docker*

- Built a fault-tolerant event delivery service using **Python** and **FastAPI** that sends notifications between software systems, automatically retrying failed deliveries with increasing delays
- Designed concurrent workers and transactional database logic in **PostgreSQL** to ensure each event is delivered exactly once, even when requests are duplicated, deliveries fail, or multiple workers process events simultaneously

Paperss | *C, Python, Linux, dbus, Wayland*

- Built a low-latency wallpaper and desktop theming engine in **C** for Wayland compositors in **Arch Based Linux**
- Implemented **caching** for high resolution photos and videos to minimize latency and used **dbus** to hotreload all other applications