# Danica Xiong

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## Education

**Stanford University**                                                                                   *Stanford, CA*
M.S. IN COMPUTER SCIENCE                                                                              *Sept 2023 – June 2025*

- 3.97 GPA: Specialization in Visual Computing (Computer Vision, Graphics, Robotics)

**University of California, San Diego**                                                                    *San Diego, CA*
B.S. IN COMPUTER SCIENCE AND ENGINEERING                                                              *Sept 2018 – March 2023*
- 3.92 GPA: Magna Cum Laude Latin honors, Warren Honor Society, 8x Provost Honors Recipient
- 4.0 GPA: Minor in Mathematics

## Experience

**Nvidia**                                                                                                *Santa Clara, CA*
SYSTEM SOFTWARE ENGINEER IC2                                                                          *Sept 2025 – Present*
- Worked concurrently on 2 teams: GPU Simulation (sim new chip hardware e2e) & LLM tooling (full stack for agents & RAG)
- Proposed & implemented architectural changes to combine Compute Warp States and Mesh Thread Groups into a unified compute shader class through Bridging. Refactoring removed the need for devs to implement compute functions twice due to virtual inheritance structure
- Built knob validation system, on p4 submission, checks if knobs have been categorized and warns user to remove from deprecation list
- On LLM team, shipped: Keyword filtering, multi file & link indexing and reading, streaming delay support, database migrations, run agents in terminal, agent configurations and tools, agent JSON/PNG/HTML/LOG parsing, hybrid RAG with Glean, Agents for Perforce, regression dashboards, many bug fixes, frontend & backend
- Re-orged on to AI Tooling team and shipped: SASS assembly behaviour diff tool, GPU Simulation performance auditing tool, GPU sim test bench diff tool, hardware constraint verification tool
- Worked with hardware developers on 8+ teams (including formal verification, chip sim, perf sim, SASS, fast kernel, MODS team, etc) to identify areas that need tools, define requirements, build tools, tested and iterated until tools solved use cases

**OpenAI**                                                                                               *San Francisco, CA*
MEMBER OF TECHNICAL STAFF                                                                             *July 2025 - Sept 2025*
- Designed, built, shipped, and maintained 3 new products: ChatGPT API, Apple Intelligence & Kakao, worked with legal, UI, partner companies
- Built new security scoping restricting 3rd party access in Rust & go. Migrated codebase, async workers, synthetics to comply with new auth
- Integrated biscuit auth between services to mitigate abuse. Developed unit and integration tests to test across every service owned by team
- Debugged image gen and file gen pipelines, debugged synthetics, identified bugs via Datadog to minimize/prevent tool downtime in Python

**Nvidia**                                                                                                *Santa Clara, CA*
SYSTEM SOFTWARE ENGINEER INTERN                                                                       *Sept 2024 – Dec 2024*
- Built and deployed new full stack portal for devs to upload and share API documentation across teams, complying w/ Microsoft Azure auth
- Built and deployed CI/CD pipeline for front and backend, set up infrastructure to automatically generate docker image and host internally
- Researched and wrote plan for incremental dependency upgrades, API efficiency and code improvements, identified and fixed API edge cases
- Integrated experimental internal LLM Nvidia Nemo as a chatbot with chip scheduling client: Automatically answered user questions
- Wrote automatic API documentation generation script using internal LLM fine-tuned on company confluence pages, removing need to write documentation, reducing development lifecycle from 3 weeks to 5 minutes, removing 10+ year old dependencies on CRNK and Springfox

**Riot Games**                                                                                            *Los Angeles, CA*
SOFTWARE DEVELOPMENT INTERN                                                                           *June 2024 – Sept 2024*
- Designed and implemented a dynamic map system in the LoL game engine, enabling projection of 3D geometry onto a 2D map
- Developed and optimized graphics engine components: vertex & frag shaders, UV mapping, and polygon convexity & handedness issues
- Parameterized logic and graphics engine calls, creating internal tool blocks to allow designers to use new features without needing to code
- Updated game client & data warehouse to ingest new telemetry data, enabling the collection of time-based user inventory statistics
- Optimized server performance by moving shape calculation to the client side, reducing network traffic from 1000+ packets to one

**Stanford Computer Graphics Lab**                                                                         *Stanford, CA*
RESEARCH ASSISTANT                                                                                    *Oct 2023 – Mar 2024*
- Built low latency video platform to simulate professional conference spaces and physical interactions, approved by Denis Zorin
- Integrated Zoom Video SDK APIs, low-level video developer APIs, and data pipeline to dynamically manage conference attendees in real-time
- Built proof of concept for 250+ worldwide SIGGRAPH 2024 committee members to collaborate on technical reviews

**Center for Visual Computing**                                                                           *San Diego, CA*
UNDERGRADUATE RESEARCHER                                                                              *Sep 2022 – Mar 2023*
- Built Python Compiler Javana that compiles inverse rendering programs to assembly to optimize for register mapping and spilling
- Benchmarked optimal automatic differentiation (Forward vs Backward) workflow for differential rendering, sped up performance by 100%

**Amazon**                                                                                                *Austin, TX*
SOFTWARE DEVELOPMENT ENGINEER INTERN                                                                  *Jun 2022 – Sep 2022*
- Developed data visualization portal that compares time-series ML model forecasted sales against customer grocery sales for supply chain
- Created and revised database and application designs, approved by Senior Software Developers, Managers, and Amazon Scientists
- Cleaned and optimized data using AWS services (S3, Lambda, Dynamo, Aurora, API Gateway) for architecting a new data pipeline
- Ensured compliance with Amazon's infrastructure standards, including CORS, token verification, and role-based access control
- Deployed across US, EU, and IN for internal backtesting and external customers visualization

## Awards & Publications

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| 2026 | **Nvidia Internal Hackathon Winner**, Built POC E2E pipeline, automatically reads Jira, selects p4 & gitlab, implements solutions with claude code using 20+ custom skills, and notifys developers via slack | *Santa Clara, CA* |
| 2024 | **YCombinator Spring 2024 Batch & Best Paper**, of 263 papers CS231N (FeiFei Li's class) HiLait: Automatic Video Highlighting System Leveraging Audio, Text, Facial, and Semantic AI | *Stanford, CA* |
| 2024 | **Champion**, of 78 teams. Best reasoning, search & representation algorithms in CS227B General Gameplay | *Stanford, CA* |
| 2023 | **First Place**, Built math-based Non-Euclidean shader displaying hyperbolic and elliptic space | *VC Hackathon* |
| 2022 | **Co-Author**, UnMapped: Exploiting Experts' Situated Experiences in Collaborative Mixed Reality | *SIGCHI 2023* |
| 2022 | **Presenter**, Developed and demoed real time 3D networked engine at Qualcomm Institute, that featured realtime path tracing with hardware supported acceleration | *San Diego, CA* |
| 2019 | **Top 5**, out of 70 teams at HACKXX. Made an interactive VR museum that transports users to event | *San Diego, CA* |
| 2018 | **Silver**, SKILLS robotics competition (Built 2 remote controlled, 1 autonomous robot using VEX) | *Toronto, ON* |

## Skills

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| **Languages** | Java, C++, C, Python, Haskell, GLSL, HLSL, Javascript, Typescript, LaTeX, Rust, System Verilog, C#, Julia |
| **Artificial Intelligence/ML** | Pytorch, OpenCV, Numpy, Pandas, Matplotlib, CVXPY |
| **Graphics/Game Dev** | DirectX11, OpenGL, Unity, Steam VR, Oculus, Autodesk Maya, DirectX12, DirectX9 |
| **Web Development** | React, HTML, CSS, Rest API, Node, JWT Tokens, Spring, MongoDB, Tomcat, VueJS, Docker, SQL, Maven |
| **Cloud & AWS Technology** | S3, Lambda, DynamoDB, AuroraDB, Athena, Glue, EC2, CloudFormation, CloudWatch |
| **Software tools** | VI, Perforce, Github, Git, Gitlab, Github Actions, Agile, GDB, Valgrind, Bash |