Danica Xiong

(858) 999-1736 | danica.xiong@gmail.com | danicax.github.io | danicax | danica-xiong | US/Canada Dual Citizen

Education

Stanford University — *Stanford, CA*

M.S. in Computer Science — *Sept 2023 – June 2025*

- 3.9 GPA: Specialization in Visual Computing (Computer Vision, Graphics, Robotics)
- Incoming course assistant for Continuous Mathematical Methods, CS205L w/ prof. Ron Fedkiw

University of California, San Diego — *San Diego, CA*

B.S. in Computer Science and Engineering — *Sept 2018 – March 2023*

- 3.9 GPA: Magna Cum Laude Latin honors, Warren Honor Society, 8x Provost Honors Recipient
- 4.0 GPA: Minor in Mathematics

Experience

Nvidia — *Santa Clara, CA*

Software Engineer Intern — *Sept 2024 – Dec 2024*

- Incoming System Software Engineer Intern on System Data Tools Team

Riot Games — *Los Angeles, CA*

Software Development Intern — *June 2024 – Sept 2024*

- Identified and resolved 2+ year old bugs in a 600,000-file codebase, deploying fixes to live servers with 180 million active users
- 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 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

Human-centered eXtended Intelligence Lab — *San Diego, CA*

Co-Author, Undergraduate Researcher — *Sep 2021 – Jun 2022*

- Developed scripts to aggregate time and user statistics, created and tested VR scripts, designed interface mockups for XR application
- Tested efficacy for "Unmapped", an AR/VR Networked app w/ holographic projections, to perform remote surgical operations

University of California, San Diego — *San Diego, CA*

Instructional Assistant — *Jun 2021 – Mar 2023*

- Taught 200+ Students: CSE 101 Design and Analysis of Algorithms, CSE 130 Functional Programming, and CSE 167 Computer Graphics

Awards & Publications

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 Center, that featured realtime pathtracing 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

Languages	Java, C++, C, Python, Haskell, GLSL, HLSL, Javascript, LaTeX, System Verilog, C#, MATLAB, R, Julia
Artificial Intelligence/Machine Learning	Pytorch, Tensor Flow, OpenCV, Numpy, Pandas, Matplotlib, Halide
Graphics/Game Development	DirectX12, OpenGL, Unity, Steam VR, Oculus, Autodesk Maya, DirectX11, DirectX9
Web Development	ReactJS, HTML, CSS, REST API, HTTPS API, Node.JS, JWT Tokens, SQL
Cloud & AWS Technology	S3, Lambda, DynamoDB, AuroraDB, Athena, Glue, EC2, CloudFormation, CloudWatch
Software tools	VI, Bash, Valgrind, ANT, shell scripting, Github, Git, Agile, Github Actions