Nicholas Jennings

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EDUCATION

Stanford University
PhD Computer Science 2025 - Present
- Rotating with Maneesh Agrawala, Kayvon Fatahalian, & James Landay

University of California, Berkeley
M.S. Electrical Engineering & Computer Science 2023 - 2024 (GPA: 4.0)
- Advised by Prof. Björn Hartmann

B.A. Computer Science, Applied Mathematics 2019 - 2023 (GPA: 3.94)
- High Distinction in General Scholarship

RESEARCH EXPERIENCE

Stanford University **Stanford, California**
Graduate Research (PhD) Sep 2025 - Present
- Rotating with Maneesh Agrawala. I'm working on developing guardrails to allow for better developer control over runtime code generation, as well as a methodology for how these guardrails might be used.

University of California, Berkeley **Berkeley, California**
Graduate Research (MS) Aug 2023 - Aug 2024
- Thesis project mentored by Prof. Björn Hartnann and James Smith. I Developed a LLM-based runtime code generation system for virtual environments, then conducted quantitative evaluations and interviews with game developers to explore how this technology could impact them. **Published at UIST'24, Best Paper Award**
- Mentored by Prof. Ren Ng, I worked on an ongoing research project to model color space as experienced by human tetrachromats (people with 4 cone types instead of the usual 3). We built a custom printer setup capable of printing Ishihara-style dot tests to detect tetrachromacy. **Results Published at SIGGRAPH'24, Honorable Mention**
- Mentored by Prof. Sarah Chasins, I worked on a research project exploring the use of randomness in computer-generated art. We built an extension to p5.js to enable new ways of creating/modifying random variables, and studied the effects of this tool on creative coders.

Undergraduate Researcher, Berkeley Institute of Design Sep 2021- May 2023
- Mentored by Björn Hartmann and James Smith. I worked on the GeneratiVR project where I created a Virtual Reality based sorting tool for use in Generative Design workflows. I designed novel spatial interactions for filtering parametric design spaces. **Published at CHI'22 and ICED'23**
- Mentored by Prof. Björn Hartmann and James Smith, I worked on a research project concerning multi-body bimanual interactions in VR. We created novel interaction techniques for selection and locomotion using Unity3D, developed a mathematical model to describe properties of the interaction, and conducted a user study.

Undergraduate Research Assistant, BLUES lab Sep 2021- Sep 2022
- Mentored by Eleonora Losiouk. I worked on a project studying the malware ecosystem of virtualized android apps. I built Gradle scripts for virtualizing malwares and assessing their detectability by commercial antivirus apps, and used Bash, Gradle, Docker, and Python scripts to create an semi-automated system for identifying virtualization-based malwares from virus databases, allowing for more in-depth analysis.

KTH Royal Institute of Technology **Stockholm, Sweden**
Research Exchange Student June - Aug 2024
- Exchange program with UC Berkeley
- Mentored by Prof. Andrii Matviienko, worked on a research project to explore how signifiers impact the affordances of beyond-real VR interactions. I recreated and modified popular VR interaction techniques

using compute shaders, and conducted and analyzed data from a user study. The resulting paper was **published at VRST'25**

California State University, San Marcos **San Marcos, CA**
Computer Science Research Intern Jan - Mar 2019

- Aided in a qualitative study on alternate methods of computer file structure representation. Used the Unity Engine to create a three-dimensional file visualization system compatible with GitHub

University of Michigan **Ann Arbor, MI**
Computer Science Research Intern May - June 2017

- Collected probate information from local records as part of a larger project to create a national database
- Used the Puppeteer web scraping library to successfully develop and deploy web scraping software to automate probate data extraction

---------- PUBLICATIONS ----------

- **Nicholas Jennings**, Andrii Matviienko Reimagining Go-Go: Effects of Signifiers in VR Selection Techniques VRST'25
- (Best Paper) **Nicholas Jennings**, Han Wang, Isabel Li, James Smith, and Björn Hartmann. What's the Game, then? Opportunities and Challenges for Runtime Behavior Generation UIST 2024
- (Honorable Mention) Jessica Lee, **Nicholas Jennings**, Varun Srivastava, Ren Ng. Theory of Human Tetrachromatic Color Experience and Printing SIGGRAPH 2024
- Ananya Nandy, James Smith, **Nicholas Jennings**, Mike Kuniavsky, Bjoern Hartmann. VR or Not? Investigating Interface Type and User Strategies for Interactive Design Space Exploration ICED 2023
- **Nicholas Jennings**, Ananya Nandy, Xinyi Zhu, Yuting Wang, Fanping Sui, James Smith, Bjoern Hartmann. GeneratiVR: Spatial Interactions in Virtual Reality to Explore Generative Design Spaces CHI 2022

---------- WORK EXPERIENCE ----------

Sandia National Laboratories **Albuquerque, New Mexico**
Computer Scientist Sep 2024 - June 2025

- Conducted research related to user interfaces for satellites

Amazon (AWS) **Seattle, WA**
SWE Intern May - Aug 2023

- Designed and implemented a gamification extension to an internal iOS application, with a native AWS REST service as a backend using services such as Lambda, DynamoDB, and SNS.
- Created an Augmented Reality app component using RealityKit

SWE Intern May - Aug 2022

- Designed and implemented a service which used AWS services to send scheduled notifications to specified subsets of mobile app customers.
- Designed the service for easy integration with future tools, and documented how these extensions should be implemented.

---------- OTHER PROJECTS ----------

BlossomVR (C#, Unity) **App Lab**

- Meditation VR arcade game. As team lead I worked on the overall app architecture and design, and oversaw our initial beta release to the Meta App Lab

Firework Simulation (HLSL, C#, Unity) **Link**

- Custom firework/smoke simulation and renderer

ASCII graphics renderer (C++) **Github Link**

- First person camera / controller using ASCII characters, runnable in terminal

TutoriVR (C#, Unity) **Link**

- Implemented a tutorial extension for VR applications for use with the OpenBrush VR painting tool

---------- ADDITIONAL SKILLS ----------

Languages: Java, C#, C++, Python, Swift, HLSL, HTML/CSS, TypeScript, SQL
Technologies: Unity3D, AWS, DynamoDB, JUnit, Docker, Git, Kanban, Blender, RealityKit