

ABHIK AHUJA

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EDUCATION

University of Cambridge

October 2023 - June 2024

M.Phil. Advanced Computer Science, Advisor: Professor Rafał Mantiuk

Focus: Computer Graphics and Vision

University of California, Berkeley

August 2019 - May 2023

B.A. Computer Science, Mathematics. GPA: 3.85/4.0

Focus: Computer Vision, 3D Reconstruction, Computational Imaging

San Joaquin Delta College

August 2015 - May 2019

A.S. Mathematics. GPA: 3.95/4.0

Studied concurrently with high school. Earned 5 Associate degrees.

RESEARCH EXPERIENCE

University of Cambridge

October 2023 - Present

Advisors: Professor Rafał Mantiuk, Tianhao Wu, Fangcheng Zhong

Exploring relighting 3D Gaussian Splatting models using normal and BRDF prediction, text-guided editing of dynamic NeRF models, and using contrastive learning for video-to-video translation.

Berkeley AI Research Lab (BAIR)

July 2022 - September 2023

Advisors: Professor Angjoo Kanazawa, Matthew Tancik

Worked on text-to-3D generative models using Neural Radiance Fields (NeRF) and 2D Diffusion models for Nerfstudio, an open source NeRF repository with over 7k stars on GitHub and used by Netflix, BBC, LucasFilm, etc.

UC Berkeley SLICE Lab

October 2020 - May 2022

Advisors: Professor Koushik Sen, Kevin Laeuffer

Studied automatically repairing bugs in Verilog source code using SMT solvers. Wrote a pass for Berkeley's FIRRTL compiler to automatically repair logical loops in register transfer level (RTL) designs.

Cornell, Maryland, Max Planck Pre-Doctoral Research School

August 2021

Saarbrücken, Germany

One of 120 students worldwide selected to participate in CMMRS 2021, a week long program to expose students to computer science research and life as a researcher. Learned about topics in Deep Learning, Robotics, and Human Computer Interaction.

INDUSTRY EXPERIENCE

Amazon — Software Development Engineer Intern

May 2022 - August 2022

Seattle, Washington, USA

Built automatic AWS deployment system in Java and Python to support new feature backend. Designed and wrote custom versioning infrastructure to allow for easier product updates and rollbacks.

CDK Global — Software Engineering Intern

June 2021 - August 2021

San Jose, California, USA

Designed and built new testing infrastructure for software release pipeline. Built React web portal to manage and interactively run testing services on new software releases.

PUBLICATIONS

RTL-Repair: Fast Symbolic Repair of Hardware Design Code

Kevin Laeuffer, Brandon Fajardo*, Abhik Ahuja*, Vighnesh Iyer, Borivoje Nikolic, Koushik Sen

Under submission to ASPLOS 2024.

Nerfstudio: A Modular Framework for Neural Radiance Field Development

Matthew Tancik, Ethan Weber, Evonne Ng, Ruilong Li, Brent Yi, Justin Kerr, Terrance Wang, Alexander Kristofferson, Jake Austin, Kamyar Salahi, Abhik Ahuja, David McAllister, Angjoo Kanazawa

ACM SIGGRAPH, 2023.

PROJECTS

- DiffGEM: Diffusion guided editing of 3D GAN Models from a text prompt.
- VRNeRFs: A virtual reality viewer for NVIDIA's Instant-NeRF library.
- Linux System Administration: Self host multiple services for personal use on personally owned Linux server.
- Uni: iOS application to remove tracking parameters from copied and shared URLs.

TECHNICAL SKILLS

- Languages: Python, Java, Scala, C, C++, SQL, Javascript, Golang, OCaml, RISC-V, HTML, CSS, LaTeX
- Libraries and Software: PyTorch, SciPy, NumPy, Matplotlib, Linux, Docker, Flask, React

RELEVANT COURSEWORK

University of Cambridge

- L352: Advanced Graphics and Image Processing
- L335: Machine Visual Perception
- L314: Digital Signal Processing

UC Berkeley

- CS 294-173: Learning for 3D Vision
- CS 194-26: Introduction to Computer Vision and Computational Photography
- CS 184: Computer Graphics and Imaging
- CS 182: Deep Neural Networks
- CS 189: Introduction to Machine Learning
- CS 188: Introduction to Artificial Intelligence
- CS 170: Efficient Algorithms and Intractable Problems

TEACHING

MATH 198: Introduction to Origami Art and Design	Fall 2022, Spring 2023
CS/INFO 198: Digital Privacy	Fall 2021, Fall 2022, Spring 2023
CS 170: Efficient Algorithms and Intractable Problems	Spring 2021
CS 70: Discrete Mathematics and Probability Theory	Summer 2020, Fall 2020

AWARDS

2023: Graduation with Distinction	UC Berkeley
2019 - 2023: Shiram Scholars	\$1000 USD/year scholarship program
2019: Graduation with High Honors	San Joaquin Delta College

LEADERSHIP

Introduction to Origami Art and Design	2022 - 2023
Co-Founder of the student-led Origami course at UC Berkeley. Created and taught curriculum on origami folding practice, design principles, and mathematical connections.	
Digital Privacy	2021 - 2023
Co-Founder of the student-led Digital Privacy course at UC Berkeley. Created and taught curriculum on privacy legislation and individual action surrounding personal privacy.	
CAL Origami	2019 - 2023
President of the origami club at UC Berkeley. Planned and hosted the East Bay Origami Convention in Spring 2023 to support the San Francisco Bay Area origami community.	