

# Mehek Jethani

551-777-1960 | mehekj2020@gmail.com | <https://mehekjethani.me/>

## EDUCATION

### Brown University

*B.Sc. in Computer Science*

Providence, RI

*September 2020 – May 2024*

Coursework: Advanced Computer Graphics, Computer Vision, UI/UX, Deep Learning, Computer Systems, Data Structures and Algorithms, Discrete Math, Linear Algebra, Statistical Inference

## EXPERIENCE

### Engine Engineering Intern

*Activision, Infinity Ward*

May 2023 – August 2023

*Los Angeles, CA*

- Launched Call of Duty Modern Warfare II's Sustainability Initiative and implemented the new "Eco Mode" setting
- Developed rendering features to cut back energy consumption in the multiplayer game
- Wrote C++ code for a Triple A game engine supporting a live product with regular title updates

### Undergraduate Teaching Assistant

*Brown University*

May 2022 – Present

*Providence, RI*

- Designed assignment code and handouts for Brown's CSCI 1230 computer graphics course in C++ and OpenGL
- Oversaw a team of TAs in completely rewriting multiple course projects and individually created a new assignment with an interactive Qt OpenGL demo to teach students about coordinate spaces and affine transformations
- Hosted two sets of weekly office hours during the semester to provide one-on-one conceptual and debugging help

### Undergraduate Research Assistant

*Brown University*

May 2021 – May 2023

*Providence, RI*

- Led a team of research assistants in building Dash, a MERN stack Typescript browser-based hypermedia system
- Delegated coding tasks, supervised weekly meetings and codebase updates, performed user testing, managed member recruitment, and instituted a peer code review system
- Introduced features for audio/video playback and editing, digital handwritten note transcription, and a table schema interface for viewing and modifying collections of document metadata

## PROJECTS

### Intrinsic Triangulations | C++, Qt, Eigen

April 2023 - May 2023

- An implementation of the SIGGRAPH 2019 paper "Navigating Intrinsic Triangulations" in C++
- Translated paper concepts into code to create a data structure for an intrinsic representation of a triangle mesh and wrote algorithms for constructing, querying, and refining these meshes

### Geoguessr CNN | Python, Tensorflow, Google APIs

April 2023 - May 2023

- Compared the performance of two models built using ResNet50: one for country classification and one for latitude/longitude coordinate prediction based on streetview images similar to the game Geoguessr
- Implemented GradCAM in Tensorflow for interpreting the classifier model results
- Trained on a novel dataset of streetview images scraped from the Google Maps API into Google Storage Buckets

### Path Tracer | C++, Qt, Eigen

February 2023

- Physically based renderer using Monte Carlo sampling to produce images with soft shadows and caustics
- Implemented BRDF importance sampling, refraction with Fresnel reflection, depth of field, and next event estimation for direct and indirect lighting

### Chess Vision | Python, OpenCV

May 2022

- Python app to identify and digitally display chess moves from a physical board through a live webcam feed
- Used only traditional CV techniques such as Canny Edge Detection and Hough Transforms to support a fully transparent algorithm free of black box deep learning methods and external data

## TECHNICAL SKILLS

**Languages:** C/C++, Python, Javascript/Typescript, HTML/CSS, Java

**Frameworks/Libraries:** OpenGL, Eigen, Tensorflow, OpenCV, React, Node.js, Next.js, TailwindCSS

**Tools:** VS Code, Visual Studio, Qt, Git, Google Cloud Platform, Figma, Photoshop, Illustrator, Blender