Mehek Jethani

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Education

Brown University Providence, RI

B.Sc. in Computer Science *September 2020 – May 2024*

Coursework: Computer Systems, Data Structures and Algorithms, UI/UX, Deep Learning, NLP, Computer Vision, Computer Graphics, Computational Photography, Embedded Systems, Linear Algebra, Statistical Inference

Experience

Engine Engineering Intern | *C++, Visual Studio, Perforce, Jira, Confluence* May 2023 – August 2023

Activision, Infinity Ward *Los Angeles, CA*

- Wrote PC and console C++ code for the cross-platform Call of Duty game engine supporting a live product
- Created and shipped the new Eco Mode setting for Warzone S5, launching CoD's Sustainability Initiative
- Developed rendering features that reduce power consumption in the multiplayer game lobbies by almost 50%
- Collaborated with Microsoft to profile power usage changes on XBox and implemented telemetry features to gather player device performance data

Undergraduate Teaching Assistant | *C++, OpenGL, Qt* May 2022 – Present

Brown University *Providence, RI*

- Designed assignment code and handouts for Brown's CSCI 1230 computer graphics course in C++ and OpenGL
- Rewrote two projects and created a new interactive assignment about coordinate spaces and transformations
- Host two sets of weekly office hours during the semester to provide one-on-one conceptual and debugging help

Lead Research Assistant | *React, TypeScript* May 2021 – May 2023

Brown University *Providence, RI*

- Led a team of research assistants in developing Dash, a MERN stack Typescript browser-based hypermedia system
- Delegated coding tasks, supervised weekly meetings, performed user testing, handled member recruitment, and instituted code reviews to manage updates to a 100,000+ line codebase
- Implemented tools for audio/video editing, digital handwriting transcription, and document metadata interaction

Projects

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 of streetview images inspired by 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 next event estimation for direct and indirect lighting, refraction with Fresnel reflection, BRDF importance sampling, and depth of field

Public Library Website Redesign | *HTML/CSS/JS, Figma, Balsamiq* October 2022

- Case study assessing accessibility and usability issues of the Bergen County Cooperative Library System website
- Designed an improved version addressing identified flaws using Balsamiq wireframes and Figma prototypes
- Created a responsive rendition of the site using HTML/CSS/JS for mobile, tablet and desktop devices

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 create a socially responsible algorithm free of black box deep learning methods and external data

Technical Skills

Languages: Javascript/Typescript, Python, C/C++, HTML/CSS, Java
Frameworks/Libraries: React, Node.js, Express.js, Next.js, TailwindCSS, Tensorflow, OpenCV, OpenGL, Eigen
Tools: VS Code, Visual Studio, Qt, Git, Perforce, Jira, Confluence, GCP, Mongo, Figma, Photoshop, Illustrator, Blender