

Matthew L. Komar

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I am a junior at Carnegie Mellon with an interest in Virtual Reality (VR) and Augmented Reality (AR), Visualization, Simulation, and Robotics. I have significant experience prototyping VR and AR experiences using Unity and Unreal Engine.

Education

BA. Immersive Engineering

Carnegie Mellon University
Expected Graduation 2023

Skills

Relevant Course Work:

Interactivity & Computation, Human-AI Interaction, Intro to Data Structures, Intro to Computer Systems, Communication Design, Calculus, Linear Algebra, Data Visualization

Programming Skills:

C, C#, C++, Python (Machine Learning, Numpy, Pandas), JavaScript

Technical Skills:

Unreal Engine, Unity, Autodesk Maya, Machine Learning, Substance Painter

Additional Skills:

Leadership, Virtual Reality & Augmented Reality development, Computer Graphics

Experience

Augmented Perceptions Lab: VR/AR developer

June 2021 – August 2021

- Currently making an Augmented Reality application in Unity to visualize a primary task that a user missed out when they were distracted doing another task. I am responsible for implementing an object detection model with Unity so the program can keep track of objects to visualize.
- Built a multi-user **Mixed Reality training application** for surgeons in Unity. Used Intel Real Sense depth cameras to create point-cloud mesh avatars to be used in Virtual Reality and Augmented Reality. Communicated with researchers in different time zones and worked in a team.

Neuroscience VR Lab: VR Developer

August 2020 – Present

- Designing and developing a **User Interface** for researchers to interact with and read information from a **Unity** made VR program and other peripherals while testing on research participants currently in VR.

NASA SUITS: AR Challenge

September 2021 – Present

- Wrote a proposal for an Augmented Reality app for the HoloLens Gen 2 to be used by astronauts during the Artemis Moon Missions. I reached out and interviewed an ex-astronaut to get a better idea of features astronauts need in an AR app.

Game Creation Society: Director of Development

September 2019 – Present

- Brought Unreal Engine/3D modelling into mainstream use in the club.
 - Introduced a successful class and helped organized large events.
- Led several teams ranging in size from 6 – 25, in prototyping games in Unreal Engine and Unity. I programmed in C++, blueprints, 3D modelled, textured and 3D modelled. I worked on PC and Mac games, some multiplayer, and several VR games for PC and Oculus Standalones.

Algorithms with a Purpose: UI Programmer

January 2021

- Designed and programmed a map of trains, their passenger amount, and location, given inputs from a train algorithm.
- My UI was used by participants in the Algorithms with a Purpose hackathon at CMU.

The Covidulator

December 2020

- Made a **Machine Learning** model to predict COVID-19 likelihood based certain conditions. I communicated between the python model and Unreal Engine 4 using TCP/IP made in C++.

Raspberry Car

October 2020

Converted an RC car to be teleoperated by laptop through internet via **TCP/IP** server on a **Raspberry Pi**. Programmed in C. It also transmitted a video feed.

Project Dungeon Crawler

May 2018 – January 2019

- Built an interactive experience for the **Oculus GO** platform. Programmed all gameplay and made all 3D models & animations.

Honors

GCS Gold (best game)

December 2019

HackCMU (1st Place)

September 2019