

# Matt Komar

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## Education

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### Carnegie Mellon University

B.S. Computer Science

*Self Defined Major in Immersive Technologies*

August 2019 - May 2023

## Skills

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### Languages

- C / C++ / C#
- Python (Tensorflow, Pandas)
- Javascript (p5.js, D3.js)
- HTML / CSS
- Blueprints (Unreal Engine)

### Game Development

- Unreal Engine
- Unity Engine
- VR Development & Deployment
- 3D Asset Optimization
- Computer Graphics (OpenGL)

### Digital Media

- 3D Modeling (Maya)
- Autodesk Mudbox
- Substance Painter
- Adobe Photoshop
- Data Visualization

## Accomplishments

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### MIT Reality Hacks 2023

- Best Shared World Experience

### UIST 2022

- Poster Accepted

### Stanford Treehacks 2022

- Won Accessibility Track

### HackCMU 2019

- First Place Winner

## Work Experience

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### AR/VR Software Engineer

Augmented Perception Lab | Jun. '21 - Present

- Designing a mobile AR app (iPad, ARKit, C#) to determine long term advantages of using AR for education.
- Created a multiplayer (Photon) MR surgeon training app that used data collected from depth cameras (Intel RealSense) to create avatars.

### Production Management Intern

Lumen Technologies | Jun. '22 - Aug. '22

- Developed three interactive AR apps for the Magic Leap 1 in Unity C# to advertise the capabilities of Lumen's Edge Computing.
- **Programmed custom animation backend** to speed up in-engine content creation. Supported with tech art by making particles and 3D models.
- **Created intuitive AR button interactions** by interviewing 10 stakeholders, iterating, and testing new designs.

### Software Engineer Intern

NASA JPL | Jan. '22 - May. '22

- **Maintained and expanded JPL's Dynamics and Real-Time simulation (DARTS) visualizer** for Unreal Engine C++ in Linux (Fedora 34).
- **Improved frame rate by over 800%** by refactoring runtime material generation, mesh spawning, and object manipulation.
- Created saving, loading, and deletions of simulation data which sped up iteration time and created better workflow.

### AR Developer

NASA SUITS | Sep. '21 - Aug. '22

- Co-led team of 8 to **develop an assistive AR interface for astronauts** on the Artemis missions for the Microsoft HoloLens 2 using Unity C#.
- **Designed and iterated** on AR UI to clearly communicate data to users and reduce cognitive load which were **highly praised by the astronauts**.
- Built a coordinate-based long-range navigation system.

## Projects

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### Panarctica: Project Lead

Game Creation Society | Sep. '22 - Jan. '23

- **Led a team of 15 people** to develop a vertical slice and acted as project manager and programmer.
- **Refactored weapon inventory systems**, programmed ammo UI elements, created zipline and iterated turret interactions.
- Organized weekly meetings, debriefs, and delegated tasks
- Mentored teammates how to create AI and UI.
- Supported with tech art and by creating levels.

### Food Fight: The First Course

Game Creation Society | Jan. '21 - Dec. '21

- **Built a game system framework to teach** game development pipeline using Unreal Engine (Blueprints, C++) and 3D Modeling (Maya).
- **Created a modular AI system** using behavior trees to create 8 extendable enemy types.
- **Taught 40+ students** to write their own level scripts, object classes, AIs, as well as make their own level designs.