# JOEL MANDELL

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#### **EDUCATION**

### **University of Pennsylvania**

Philadelphia, PA

MSE Computer and Information Technology & Computer Graphics/Game Technology

May 2025

**University of Notre Dame** 

Notre Dame, IN

Bachelor of Arts in Film, Television and Theater, Political Science

January 2023

### Relevant Coursework (School of Engineering and Applied Sciences)

Artificial Intelligence, Interactive Computer Graphics, 3D Computer Modeling, Advanced 3D Animation,
 Algorithms & Computation, Data Structures & Software Design, Computer Systems Programming

### **PROFESSIONAL EXPERIENCE**

### **YKK AP Technologies Lab**

Pittsburgh, PA

Software Engineering Intern (UI/UX and software development)

June 2024-Present

- Design and develop UI/UX elements for desktop and mobile applications, as well as AR/VR environments utilizing Unreal Engine 5 (C++ and Python)
- Create displays and control interfaces for remote robotic operation, integrating live data visualization through an API
- Create 3D digital twin models using laser scan data

## **Fighting Irish Media**

Notre Dame, IN

Student Editor/ Productions Worker

June 2019 - May 2023

- Filmed, edited videoboard and social media content for Notre Dame Athletics as well as independent contractors
- Operated live replay, graphics, and camera for Notre Dame Athletics broadcasts on ESPN, NBC, and ACC networks.

## **TECHNICAL SKILLS**

#### Programming Languages: Java, C++, Python, C, OpenGL, HTML/CSS

 Experienced with GitHub collaboration, operated in both LINUX, UNIX environments. Utilized multiple Python libraries including NumPy, Pandas, NLTK, Sklearn, Pytorch and TensorFlow

Modeling and Animation Skills: Unreal Engine, Adobe Premiere Pro, After Effects, Autodesk Maya, Mudbox, ZBrush

### **PROJECTS (SOFTWARE ENGINEERING)**

#### Mini Minecraft

December 1 – 20, 2024

• Game engine implemented with C++ and OpenGL in a team of three. Features implemented include player physics, texturing and texture animation, NPC's and AI, and Fluid Simulation

## Multi-Threaded Web Server (C++)

May 1 – May 15, 2024

Implemented a multi-threaded web server providing simple searching and file viewing

### **Shader Implementation**

October 10-16, 2024

Implemented multiple surface and post-process shaders in OpenGL and C++, using Qt for window and context
creation. Shaders created include Blinn-Phong, Matcap, and spherical interpolation surface shaders, along with
Gaussian Blur, Sobel, and Worley Noise-based post-process shaders. Camera implemented using Polar Spherical
Model

## **Q-Learning Agent Pac-Man**

October 25-30 2024

• Implemented a Q-Learning Approximation algorithm to train Pac-Man to successfully win the game in increasingly complex levels

## INDEPENDENT FILMMAKING

 Documentary film Saving Sister Cindy selected for the New Jersey International Film Festival, New York City Short Film Festival, Los Angeles Student Film Awards, Chicago Southland Film Festival, Notre Dame Student Film Festival, and UVT Standalone Film Festival