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)

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

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