Stephen Melnick

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GitHub: Redesigner

Skills

- **Gameplay Programming :** Unreal Gameplay Ability System, Network Prediction, AI Programming, UI Programming, Controls Programming

- **Engine Programming:** 3D Resource Management, Input Mapping, Entity-Component Systems, Physics Modeling and Collisions, Vector Math, Texture/Shadow Mapping

- **Programming Language Experience:**
  - C/C++: **6 Years**
  - C#, Unreal Blueprint: **3 Years**
  - JavaScript, HTML/CS: **2 Years**
  - Python, Verilog, GLSL, GDScript: **1 Year**

- **Development Tools:** Visual Studio, Visual Studio Code, Git, Blender

- **Game Engines:** Unreal Engine 4/5, Unity, Godot, XNA/MonoGame, SDL

Personal Projects

Witch Forest | Solo Developer   **February 2024**

- Programmed Gameplay Ability System
- Implemented custom content creation tools for recipes and items
- Created custom network prediction system to integrate with Unreal GAS
- Integrated custom AI logic with existing Behavior Trees to create advanced behavior

Curse of Grimfall | Solo Developer   **May 2023**

- Programmed custom character, physics and weapon systems
- Implemented armor and directional hitbox system to work with Unreal animation tools
- Designed all models and 2D assets, and animated all characters

Rea Engine | Solo Developer   **March 2022**

- Developed simple custom rendering system using OpenGL pipeline using SDL
- Designed easy-to-use entity-component system with messaging
- Implemented continuous collision detection for convex polygons based on Gilbert-Johnson-Keerthi model
- Developed font loading and atlas texture generation using FreeType
- Programmed custom *.obj file loader, with UV and N-gon support

Tether | Lead Developer   **December 2021**

- Custom platforming physics with advanced movement systems
- Created unique character design with modeling, rigging, and expressive animation

[GJK Implementation](#) | Solo Developer/Designer   **March 2021**

- Wrote and designed presentation for explaining methodology and foundational concepts
- Programmed in both C# and C++
- Implemented simple gift-wrapping algorithm for use with complex polygons
- Developed visualization/interactivity with Microsoft XNA

[Additional Other Projects](#)

Professional Experience

Lab Research Assistant | Temple University Computer Science Dept., Philadelphia, PA   **August 2019 – January 2021**

Doctoral Program Research Assistant, responsible for data research, computer programming, and hardware/circuit design

Installer | Pierson Computing Connection, Mechanicsburg, PA   **April 2018 – August 2018**

Help Desk Associate | Temple University IT, Philadelphia, PA   **August 2015 – April 2018**

Education

Temple University, Philadelphia, PA
Coursework towards B.S., Computer Science (Data Structures and Algorithms, Low-Level Programming, Physics, Computational Probability and Statistics, Mathematical Concepts in Computing)

Additional Skills

Illustration, Watercolor Painting, Digital Painting, Technical Writing and Investigative Research, Creative Writing