

# Eli Bogomolny

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## EDUCATION

**UNIVERSITY OF PENNSYLVANIA**  
SCHOOL OF ENGINEERING AND  
APPLIED SCIENCE  
Expected Graduation May 2020

**BSE IN COMPUTER GRAPHICS:**  
Digital Media Design  
**MINOR IN MATHEMATICS**

CUMULATIVE GPA: 3.39/4.00

## COURSEWORK

Interactive Computer Graphics  
Physically Based Rendering  
Physically Based Animation\*  
3-D Computer Animation\*  
Complexity & Computability\*  
Data Structures and Algorithms  
Statistics & Probability Theory  
Linear Algebra  
Calculus III  
3-D Modeling and Sculpture  
Digital Illustration  
Figure Drawing  
\*Fall 2018

## SKILLS

### PROGRAMMING:

C++ • Java • JavaScript  
OpenGL • GLSL / HLSL

### APPLICATIONS

Qt Creator • Visual Studio • Eclipse  
Houdini • Unreal Engine 4 • Git

### CREATIVE SOFTWARE

Maya • Photoshop • Illustrator

## LINKS

github: ebogo1  
twitter: ebogely  
vimeo: ebogo

## EXPERIENCE

### SIG CENTER FOR COMPUTER GRAPHICS | RESEARCH ASSISTANT

May 2018 - August 2018 | Philadelphia, PA

- Worked in Unreal Engine 4 on an educational VR experience under Dr. Norman Badler with a group of four other research assistants
- Developed character movement and interaction mechanics for head-mounted VR displays (Oculus Rift), as well as tools to prototype environments efficiently
- Implemented 3D thermal and hydraulic erosion models to simulate the effects of seasonal flooding on our terrain (C++ and OpenGL)

### MEGA CAT STUDIOS | FREELANCE ARTIST

Summer 2017

- Created artwork for NES games following graphics hardware restrictions
- Worked with in-house artists to match their style and vision

### WAYFORWARD TECHNOLOGIES, INC. | FREELANCE ARTIST

July 2016

- Created artwork for a 2D game, referencing existing assets from previous artists
- Designed gameplay mockups to be used in a pitch for the development team

### ACADEMY OF ART OF HIGHLAND PARK | ASSISTANT ART COACH

Sept 2015 - June 2016 | Highland Park, NJ

- Taught practitioners fundamental theory and techniques of drawing and painting
- Organized studio equipment and showed students how to use various media

## PROJECTS

### MAPGEN | JAVASCRIPT, THREE.JS, WebGL

Summer 2018

- Built an interactive terrain editor, emphasizing both technical and artistic functionality
- Designed a procedural construction algorithm to randomly generate rock formations with context-dependent tiles
- Utilized the three.js library to handle 3D geometry transformations, WebGL shaders, and asynchronous .obj file loading

### MONTE CARLO PATH TRACER | C++, OPENGL

Spring 2018

- Implemented the path tracer from Physically Based Rendering, including bidirectional scattering distribution functions for diffuse, specular reflective/transmissive, and microfacet surfaces
- Added functionality for acceleration structures (photon mapping), 3D environment maps, implicit surfaces (using SDFs), and constructive solid geometry

### MINI MINECRAFT | C++, OPENGL, GLSL

December 2017

- Group project with three people to recreate the Minecraft engine
- Responsible for efficient procedural terrain rendering and loading, biome-specific animated textures, and distance fog using vertex and fragment shaders

### LUDUM DARE GAME JAMS | UNITY3D, GAMEMAKER STUDIO

December 2017, June 2016

- Designed a stealth platforming game for Ludum Dare #40 with a friend. Placed 28<sup>th</sup> in the "Fun" category out of 2,892 entries
- Created a fast-paced fighting game for Ludum Dare #34 with an online friend. Placed 36<sup>th</sup> in the "Fun" category and 37<sup>th</sup> in the "Graphics" category out of 2,866 entries