

HANNAH BOLLAR

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EDUCATION

University of Pennsylvania, Philadelphia, PA

MSE in Computer Graphics and Game Technology

Spring 2020

BSE in Computer Science: Digital Media Design

Spring 2019

Minor in Mathematics, SIGGRAPH Chairman and Mentor, AWE Orientation Volunteer

The Harker School, San Jose, CA

Spring 2015

SKILLS

C++ | JavaScript | Java | OpenGL/WebGL | Python | HTML5/CSS | Git | Eigen | Bullet

Qt Creator | Visual Studio | Eclipse | Processing | 3DS Max | Maya | After Effects | Photoshop | Illustrator

EXPERIENCE

NVIDIA : Graphics Software Development Intern

Summer 2018

- Working on the OpenVR SDK.

University of Pennsylvania : Game Engine Course Developer

Summer 2018

- Aiding an instructor in the development of course material through coding the assignments.

Analytical Graphics Inc : Cesium Graphics Software Intern

Spring 2018

- Working as a graphics development intern on the JavaScript-based open-source Cesium library.

- Current projects include camera modification, particle simulation effects, and a mini game.

University of Pennsylvania : Computer Graphics Research Assistant (Donovan Scholar)

Ragdoll Simulation under Dr. Chenfanfu Jiang: C++, Python, Bullet

Fall 2017

- Using Bullet library, built simulation for "Interfering Forces and Learning Human Utilities" project.

Point Selection Application under Dr. Stephen Lane: C++, OpenGL

Summer 2017

- Allows the user to select mesh points, mesh intersections, and previous outputs on a computer to train the texturing algorithm for real objects viewed through the Oculus Rift.

University of Pennsylvania : Teaching Assistant

- CIS 563, Physically Based Animation

Fall 2018

- CIS 561, Advanced Computer Graphics (Rendering)

Spring 2018

- CIS 560, Introduction to Interactive Computer Graphics

Spring/Fall 2017 Fall 2018

- CIS 110, Introduction to Computer Programming

Fall 2016

- FNAR 264, Computer Science Workshop in Processing for Art and Design

Fall 2015 to present

PROJECTS

Smoke Simulation: C++

Spring 2018

- An in-progress implementation of the Fedkiw et al. 'Visual Simulation of Smoke' paper.

Cloth and Mesh Simulation using Position Based Dynamics: C++, Eigen

Spring 2018

- Includes stretching, compressing, and bending constraints, an implicit solver, kinematic collisions with a ball and the ground, constrained points, friction, velocity damping for the conservation of linear and angular momentum, and deflected velocity between colliding objects.

Snow and Jello Simulation using the Material Point Method: C++, Eigen

Fall 2017

- Group project implementing MPM on an APIC grid system. Our output demoed jello and snow.

- Responsibilities: Proper conversion implementation of the particle to grid and grid to particle transfers, calculation for stress deformation for force update, and other math help.

Monte Carlo Path Tracer: C++, OpenGL

Spring 2017

- Uses Multiple Importance sampling, a Bounding Volume Hierarchy acceleration tree, Photon Mapping, and Depth of Field adjustments.

Procedurally Generated Projects: JavaScript, WebGL

Spring 2017

- Coded a moving bird's wing, spawning environment, shaders and post-processing effects, crowd simulations, and projects using Perlin Noise, L-Systems, and other procedural generation techniques.