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++/C | Java | OpenGL/OpenVR/WebGL | JavaScript | Python | HTML5/CSS | Git | Eigen | Bullet
Qt Creator | Visual Studio | Eclipse | Processing | 3DS Max | Maya | After Effects | Photoshop | Illustrator

EXPERIENCE

NVIDIA : Graphics Software Engineer Intern — Summer 2018
- Working with 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 Engineer Intern — Spring 2018
- Worked as a graphics development intern on the JavaScript-based open-source Cesium library.
- Projects included 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 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.