Caroline Lachanski

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Sciences — Philadelphia, PA
Candidate for **MSE** in Computer Graphics and Game Technology, **GPA:** 3.85/4.0 — *Fall 2019*
Candidate for **BSE** in Digital Media Design, **GPA:** 3.74/4.00, **Minors** in Fine Arts, Mathematics — *Fall 2018*

Coursework: Interactive Computer Graphics, Physically-Based Rendering, Computer Animation, Procedural Graphics, Game Design and Development, Data Structures and Algorithms, Intro to Algorithms, Linear Algebra, Computer Systems, iOS Development, Discrete Mathematics, 3D Modeling

SKILLS

Programming: C++, OpenGL/WebGL, C#, Unity, Java, Python, C, Swift, Git, JavaScript, Visual Studio, Qt
Additional Software: Adobe Photoshop, Illustrator, InDesign, Autodesk Maya, SOLIDWORKS, MS Office

EXPERIENCE

University of Pennsylvania Price Lab for Digital Humanities — Philadelphia, PA
3D Programming Intern — *Sept 2018 - Present*
- Develop interactive VR/AR experiences for Oculus Rift and HoloLens for visualizing archaeological artifacts and locations

STRIVR — Menlo Park, CA
Software Engineering Intern, under Rama Pagadala (Director of Engineering) — *May 2018 - Aug 2018*
- Developed soft skills training application for Oculus Rift and Go using Unity and C#
- Worked with 6+ person team of developers and artists employing Agile methodology and TFS
- Developed new workflow for storing and accessing project assets with asset bundles stored on disk
- Implemented 3 new shaders, made UI/UX changes, and added features such as a spherical video scene

PROJECTS

Monte Carlo Path Tracer: *C++, Qt* — *Spring 2018*
- Implemented path tracer, using various integration methods including direct lighting and global illumination with multiple importance sampling, culminating in photon mapper using k-d tree
- Added features such as thin lens camera, implicit surfaces, various light sources and materials

Mini Minecraft: *C++, OpenGL, Qt* — *Fall 2017*
- Worked on 3-person team to develop Minecraft-like game
- Implemented procedurally generated terrain with 2D fractal Brownian motion, raymarching and ray-cube intersections for interaction with environment, A* algorithm to determine movement of non-player character, distance fog, and multithreading in terrain generation

Mini Maya: *C++, OpenGL, Qt* — *Fall 2017*
- Implemented mesh editor with GUI allowing for import of OBJ files, half-edge manipulations such as face extrusion, Catmull-Clark smoothing, face triangulation, and skeleton skinning

LEADERSHIP

Residential Advisor, Kings Court English College House, University of Pennsylvania — *Fall 2017 - Present*
Provide advising for 40+ undergraduates, plan and execute 30+ academic and social events per year for residential community, facilitate interactions between residents, Penn faculty, and community

Advancing Women in Engineering Student Advisory Board — *Spring 2015 - Present*
Lead undergraduate social committee, organize events in order to address issues specific to female engineering students, enhance their overall undergraduate experience, and improve retention

Penn SIGGRAPH ACM Board — *Spring 2017 - Present*
Plan professional workshops, social events, and mentoring program for school computer graphics community