

# 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 using Unity, C#, and Vuforia

**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