

# CAROLINE LACHANSKI

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## EDUCATION

**University of Pennsylvania** School of Engineering and Applied Science Philadelphia, PA  
Candidate for **MSE** in Computer Graphics and Game Technology, **GPA: 3.85/4.00** 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 & INTERESTS

**Programming:** C++, GLSL, C#, Java, Python, C, Swift, JavaScript

**Software:** OpenGL, WebGL, Unity, Unreal, Vuforia, Git, Visual Studio, Qt, Adobe Photoshop, Illustrator, InDesign, Maya

**Interests:** Traditional and digital illustration, film, animation, fiction novels, women in STEM, K-pop music, manga

## EXPERIENCE

**STRIVR**, Menlo Park, CA May 2018 - Aug 2018

**Software Engineering Intern**, under Rama Pagadala (Director of Engineering)

- Developed workplace communications 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

**University of Pennsylvania Price Lab for Digital Humanities**, Philadelphia, PA Sept 2018 - Present

**3D Programming Intern**

- Develop interactive VR/AR experiences for Oculus Rift and HoloLens for visualizing archaeological artifacts and locations using Unity, C#, and Vuforia
- Write documentation for future workshops and reference by Penn community

**University of Pennsylvania Engineering Summer Academy at Penn**, Philadelphia, PA June 2018 - July 2018

**Residential Teaching Assistant**

- Instructed 30+ high school students in 3D modeling with Maya for college-level graphics course

## 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++, GLSL, Qt Fall 2017

- Worked on 3-person team; 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++, GLSL, 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 Fall 2017 - Present

- Provide advising for 40+ undergraduates, plan and execute 30+ academic and social events per year

**Penn SIGGRAPH Board** Spring 2017 - Present

- Work with 8-person board to plan professional workshops, social events, and mentoring program

**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