

JONATHAN LEE

Software Engineer | Graphics Programmer

University of Pennsylvania
Philadelphia, PA

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EDUCATION

University of
Pennsylvania

Aug. 2016 - present

MSE, Computer Graphics and Game Technology

- Penn Siggraph Member
- Courses: Computer Graphics, Computer Animation, Advanced Rendering, Advanced Topics in Computer Graphics, 3D Modeling, Video 1

Rutgers
University

Aug. 2012 – Jan. 2016

BS, Computer Science

- Dean's List (Fall 2012, Fall 2014, Spring 2015, Fall 2015)
- National Society of Collegiate Scholars, Undergraduate Student Alliance of Computer Scientists, Rutgers Animation Club, Intramural Basketball Captain (2012 – 2015)
- Relevant Courses: Databases, Systems Programming, Operating Systems, Numerical Analysis, Distributed Systems

SKILLS

Programming
Languages

C, C++, GLSL, MEL, Python, Java

Web Technologies

Git, HTML/CSS, Flask, JSP, MySQL, WordPress

Design Programs

Maya, Photoshop, Illustrator, Premiere, After Effects

WORK EXPERIENCE

Disney College Program Cast Member

- Performed excellent guest experience and interaction daily.
- Maintained a well-stocked and "show ready" location.
- Courses: Disney Leadership 101
- Demonstrated "The Four Keys", Disney's vision to performing beyond excellent guest service, on multiple occasions.

Walt Disney
World

Orlando, FL

*Jan. 2016 – July
2016*

Digital Developer Intern

- Maintained various web pages for clients through WordPress.
- Designed and maintained landing pages and Facebook pages with Instapage and FalconSocial.
- Generated SEO reports through Google Analytics.

Today's
Business

Pine Brook, NJ

*May. 2015 – Aug.
2015*

PROJECTS

Path Tracer

(ongoing)

C++

- Semester long project to create a complete Monte Carlo Path Tracer.
- Current implementation estimates direct lighting in the scene.
- Handles various BSDFs, BTDFs, BRDFs, including specular surfaces, Lambertian surfaces, Oren-Nayar surfaces, and Fresnel Dielectric and Conductors.

Ray Tracer

C++

- Multithreaded ray tracer.
- Handles Phong, Lambertian, and specular reflective surfaces.
- Implemented texture maps and shadow calculation.

Mini-Minecraft

C++

- Developed the physics engine and terrain interaction (collision detection and raymarching for adding and deleting blocks).
- Implemented a first person and third person sandbox camera modes.
- Implemented various steering behaviors for NPC AI as well as a dance animation.

Mini-Maya

C++, GLSL

- Implemented a Half-Edge Mesh Data Structure.
- OBJ and JSON files are parsed to draw mesh and skeletons respectively.
- Subdivides surfaces using Catmull-Clark subdivision.
- Users can adjust the weighting of joints.

SteerLite Crowd Simulator

C++

- Implemented various algorithms including A*, GJK collision detection, and Social Forces
- GJK collision detection was extended to detect concave polygons
- Achieved excellent benchmarks on multiple test cases

RU Studying

Python Web App

- Finds empty classrooms during school hours, in real time, for students to study in.
- Students can select their campus and building to find a list of available classrooms.
- Parses JSON data from the schedule of classes in the Rutgers API.

Gradebook

GO Web App

- Completely RESTful application (POST, GET, DELETE, etc.)
- Computes grade averages.
- JSON gradebook gets modified based on user query.

SPN Request System

Java Web App

- Students login to apply for SPNs to get into an at-capacity course.
- Professors can view lists of students and determine who receives an SPN.
- Developed both backend (JSP + MySQL) and frontend of the application.