

# Raymond Liu

Email | [rl27@princeton.edu](mailto:rl27@princeton.edu)  
Phone | (541) 602-0508  
Website | <https://www.cs.princeton.edu/~rl27/>

## Education

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### Princeton University, Princeton, NJ

Fall 2019 – Present

Major: Computer Science (B.S.E.)

In-major GPA: 4.00

Cumulative GPA: 3.89

### Oregon State University, Corvallis, OR

Fall 2014 – Spring 2019

Cumulative GPA: 4.00 (75 credits as a non-degree student)

Focus on Computer Science and Mathematics

Relevant coursework:

Vector Calculus, Differential Equations, Linear Algebra

Intro to CS 1 and 2, Data Structures, Digital Logic Design

General Physics with Calculus 1, 2, and 3

### Crescent Valley High School, Corvallis, OR

Fall 2016 – Spring 2019

Cumulative GPA: 4.00

## Official Testing

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AP U.S. Government & Politics	5	May 2019
SAT Math / Reading & Writing	800 / 750	Aug 2018
SAT Physics Subject	800	June 2017
SAT Math II Subject	800	May 2017
AP Physics C: Mechanics	5	May 2017
AP Physics C: Electricity & Magnetism	5	May 2017
AP Calculus BC	5	May 2016

## Honors, Awards, and Achievements

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Qualified for USA Junior Math Olympiad (One of 156 qualifiers worldwide)	Apr 2018
Qualified for American Invitational Mathematics Examination	2016-2018
Oregon Invitational Mathematics Tournament - 3rd Place (Team Event)	May 2018
Oregon Invitational Mathematics Tournament - 4th Place (Calculus)	May 2017
Intel Northwest Science Expo (NWSE) Finalist	Apr 2017
IEEE Excellence in Computer Science Award at Intel NWSE	Feb 2017
Central Western Oregon Science Expo (CWOSE) Finalist	Feb 2017
Yale Science and Engineering Award in Computer Science (at CWOSE)	Feb 2017

## Work/Research Experience

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### Research Project at Princeton University

Joined the [Laboratory for Intelligent Probabilistic Systems](#) under Dr. Ryan Adams. Developed a system for visualizing generative models in 3D hyperbolic space. Created a projection of the Poincaré disk model in 3D space using OpenGL and connected the model with a GAN for generating correlated images based on geodesic distance. Work is ongoing.

June 2021  
– Present

### Teaching Assistant at Princeton University

TA for [COS340](#) - Reasoning about Computation.  
Course content covers mathematical and theoretical topics in computer science, including combinatorics, probability, graph theory, NP-completeness, cryptography.  
Guided students during regular office hours and on the course Piazza forum  
Graded and provided feedback for assignments and exams

Sep 2021  
– Present

### Research Assistant at Princeton University

Joined the [Princeton Vision & Learning Lab](#) to work on a visual learning project on optical flow. Developed and optimized a system for collecting human-annotated images and predicting ground truth optical flow from annotation pairs.

June 2020  
– Aug 2020

### Research Intern at Oregon State University

Joined a visual learning project designed to help provide insight into how neural networks make decisions based on meaningful visual concepts  
Learned basics of neural nets, helped work on the network using images of birds and focused on visual concepts such as wings, eyes, and beaks

July 2019  
– Aug 2019

### Computer Graphics Internship at Oregon State University

Designed a simple ray tracer / image renderer from scratch using C++  
Tested and implemented a variety of methods to increase image realism and accelerate rendering speed

June 2018  
– Aug 2018

### Teaching Assistant at Oregon State University

TA for CS162 - course content includes C++ programming, data structures, algorithms, polymorphism and inheritance.  
Guided students during regular office hours and on Canvas  
Graded and provided feedback for projects and labs

Sept 2017  
– Mar 2018

### Dementia Diagnosis Project

Continued prior work on developing a method for the diagnosis of Alzheimer's disease using neural networks.  
Implemented a technique for processing 3D MRI scans to improve the stability and accuracy of the existing neural network.  
Submitted to the Intel Science and Engineering Fair.

Feb 2016  
– Sep 2017

## Misc. Computer Science Projects

Designed and developed a web interface that allows users to automatically block advertisements in podcasts

Designed and developed a mobile app using C# and the Unity game engine that allows users to interact with search trees

Developed an interactive text-based game using C++ where the user plays as a Union soldier in the Civil War. Mostly historically accurate.

Built and trained a convnet from scratch using CIFAR10 images

Aug 2017  
– Present

## Skills

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<b>C++</b>	Proficient
<b>C</b>	Proficient
<b>Java</b>	Familiar (Used for several classes)
<b>Python</b>	Proficient
<b>HTML, CSS, JavaScript, JQuery</b>	Proficient
<b>Git/GitHub</b>	Proficient
<b>Bash</b>	Familiar
<b>LaTeX</b>	Familiar (Used to write reports for classes)
<b>OpenGL</b>	Familiar
<b>OCaml</b>	Proficient

## Hobbies

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### Ping Pong (semi-professional)

I've played at several U.S. national tournaments, as well as many state and local tournaments in Oregon (and I even won a few). My USATT rating is currently 2059.

I was previously a coach for Oregon State University's ping pong club.

### White Water Rafting

Rafted at several locations, including McKenzie River (Oregon), Clackamas River (Oregon), and Flathead River (Montana). I'm pretty experienced up to class IV rapids.

### Rock Climbing

Occasionally went rock climbing at Dixon Recreation Center, Oregon State University.

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