

Redwood City, CA

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## Education

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**Williams College** – Williamstown, MA

*Class of 2017*

- Bachelor of Arts, Magna Cum Laude, GPA: 3.96
- Majors: Computer Science and English

**University of Edinburgh** – Edinburgh, Scotland

*Spring 2016*

- Visiting student in the College of Science and Engineering

## Professional Experience

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**Machine Learning Engineer**, Facebook

*Fall 2017 – Present*

*Charitable Giving Team*

- Focused on improving the distribution and efficiency of fundraising efforts on Facebook
- Developed and maintained News Feed prediction models specific to fundraising actions
- Increased accuracy of NLP models that identify posts containing fundraiser creation intent
- Responsible for over 25% of team's top-line growth since joining

**Software Engineering Intern**, Facebook

*Summer 2016*

*Experimentation Platform Team*

- Designed python script for ad hoc statistical analysis of custom experiment data sets
- Worked full-stack to integrate program into existing back-end and front-end infrastructure

## Research Experience

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**Art Generation with Deep Networks (GANGogh)**

*Winter 2016 – Summer 2017*

*Independent Research supervised by Prof. Andrea Danyluk*

- Applied Generative Adversarial Networks to the task of creating novel pieces of art
- Built python scripts to scrape, clean and label 80,000 images from Wikiart.org
- Implemented a modified version of the improved WGAN with conditional elements of the objective function taken from AC-GAN
- Induced further differentiation between generated art styles through pre-training of the discriminator network and adding global conditioning strategies to the generator network
- Resulting discriminator outperformed past literature accuracy values on scrapes of Wikiart.org

**Music Genre Classification with CNNs**

*Fall 2016*

*Machine Learning Final Project supervised by Prof. Andrea Danyluk*

- Created convolutional neural network to predict musical genre given a 30 second song snippet
- Transformed audio files into Spectrograms and trained our CNN model on raw pixel-data
- Surpassed most literature accuracy benchmarks on GTZAN dataset through implementing a voting mechanism across 3 second audio intervals

**Encoding Information Using Recognition Memory**

*Summer 2015*

*Summer Research Assistant supervised by Prof. Brent Heeringa*

- Helped develop web-application that stored sensitive information using memorable images
- Built experimental versions of the system that were used during a series of research trials

## Selected Projects

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### Procedurally Generated Landscapes

Fall 2016

*Computational Graphics Midterm Project supervised by Prof. Morgan McGuire*

- Designed a set of procedural rules to create and render stylized low-polygon terrains
- Combined Perlin noise (terrain), Delaunay triangulation (mesh-simplification), and Voronoi diagrams (coloring) to generate unique, consistent, and explorable worlds without human input

### Rendering and Simulation of Water

Fall 2016

*Computational Graphics Final Project supervised by Prof. Morgan McGuire*

- Integrated NVIDIA's Flex PBD particle simulation library into the G3D framework in order to simulate and render realistic visual representations of water
- Implemented Marching Cubes algorithm for almost real-time mesh generation of particles
- Accounted for Beer-Lambert coloring, caustics, refraction, and reflection effects at render time

### Seam Carving

Fall 2014

*Data Structures Final Project supervised by Prof. Morgan McGuire*

- Created application for image modification using Avidan and Shamir's seam carving algorithm
- Programmed a more memory efficient version of the algorithm able to run on Android phones

## Teaching Experience

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**Teaching Assistant**, Algorithm Design & Analysis, Williams College

Fall 2016

- Led TA sessions and graded assignments

**Tutor**, Math and Science Resource Center, Williams College

Fall 2014 – Spring 2016

- Hosted tutoring sessions to review concepts from Cellular and Genetic Biology

## Honors and Awards

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**Phi Beta Kappa Honor Society Member**, Williams College

Fall 2017

- Elected after Junior year as a student in the top 5% by academic standing

**Ward Prize**, Williams College Computer Science Department

Spring 2017

- Awarded annually to the best project in computer science, for "GANGogh"

## Relevant Coursework

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Generative Adversarial Networks Independent Research • Machine Learning • Theory of Computation  
Algorithm Design & Analysis • Computational Graphics • Algorithmic Game Theory • Computer Security  
Agent Based Systems • Principles of Programming Languages • Computer Organization  
Data Structures & Advanced Programming • Statistics • Linear Algebra • Discrete Math

## Research Interests

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Machine Learning • Deep Learning • Computer Vision • Robustness • Fairness • Interpretability  
Reinforcement learning • Natural Language Processing • Multi-Agent Planning • Game Theory  
Active Learning • Adversarial Learning • Generative Networks

## Technical Skills

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Python • C++ • PyTorch • NumPy • TensorFlow • Caffe2 • SQL • PHP • Java • JavaScript • HTML/CSS