

# William Lee

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## EDUCATION

**Swarthmore College:** *B.A. in Computer Science, Class of 2020.*

**GPA:** 4.0 Swarthmore, PA

**Skills:** OpenCV, TensorFlow, Numpy, SciPy, SciKit-Learn, Jupyter Notebooks, Linux

**Coursework:** Machine Learning, Computer Vision, Linear Algebra, Multivariable Calculus, Data Structures and Algorithms

## WORK EXPERIENCE

### NASA Ames

Mountain View, CA

*Computer Vision and Machine Learning Intern*

May 2017 – Sept 2017

Software intern in three project groups at NASA Ames:

Ames Stereo Pipeline:

- Optimized NASA's geodesy/stereogrammetry software suite in C++ and decreased overall CPU usage on the NASA Ames SuperComputer (NAS) by 10%.
- Implemented an adaptive Gaussian filter to preprocess satellite imagery for stereo reconstruction.

Project Nemo:

- Implemented coral reef classification algorithms in QGIS and TensorFlow (CNNs, SVMs, MAP).
- Led the design and implementation of a computer vision image alignment pipeline used to align UAV and satellite imagery.
- Prototyped a novel machine learning pipeline to classify coral reef morphology from satellite imagery.

Exploration Ground Data Systems (xGDS):

- Full stack web development on Lunar and Martian EVA Mission Planning software using HTML5, CSS, Django, and Handlebars.js

### NASA Ames

Mountain View, CA

*Software Engineering Intern*

June 2016 – Aug 2016

- Developed a web interface allowing mapping of control points between images taken by astronauts on the ISS to Google Earth satellite imagery using jQuery and the OpenSeadragon library (JavaScript)

## OTHER EXPERIENCE

### Swarthmore College Computer Society (SCCS)

Swarthmore College

*Staff Member*

Oct 2016 – Present

- Led a team of 4 SCCS members in creating a URL shortener (<http://swat.life>) using PHP and MySQL.
- Led backend design and implementation and oversaw front-end development team

### The Paly Voice

Palo Alto High School

*Webmaster*

Aug 2015 – June 2017

- Worked in a team of 4 to maintain and improve the Paly Voice news publication website ([palyvoice.com](http://palyvoice.com))
- Gained experience with unix, nginx, wordpress, and cloudflare.

## PROJECTS

### Convolutional Neural Network for MNIST Digit Classification

Spring 2017

- Designed and implemented a Convolutional Neural Network using TensorFlow and Keras to classify MNIST digits using TensorFlow up to 99% test set accuracy..

### iSpot Bench Press Tracker

Spring 2017

- Created a program that determines when a spotter should spot a bench presser.
- Used OpenCV to perform thresholding, morphological operations, object tracking, and connected component analysis.

### ID3 Tree Implementation

Fall 2017

- Implemented an ID3 Decision Tree using Python.
- Optimized classification for the UC Irvine Heart Disease and Diabetes datasets utilizing by plotting learning curves and using N-Fold Cross Validation.

**Programming Languages:** Python, C++, HTML5, CSS, PHP, MySQL, JavaScript/jQuery