Kyle **Yee**

Student, Computer Vision Researcher

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Education

Swarthmore College — *Swarthmore, PA*

Honors Candidate for B.A. in Computer Science and Mathematics · GPA: 3.81 — *Aug. 2015 - Exp. May 2019*

- Relevant Coursework: *CS:* Deep Learning, Machine Learning, Artificial Intelligence, Algorithmic Game Theory, Algorithms, Networks
  Math: Differential Geometry, Topology, Real and Complex Analysis, Modern Algebra, Multivariable Calculus, Linear Algebra
  Physics: Analytical Dynamics, Quantum Theory, Electricity & Magnetism, Mechanics, Thermodynamics, Optics, Spacetime & Quanta

Research Experience

REU Site - Big Data Analytics, *Washington University in Saint Louis* — *Summer 2018*

- Computer Vision research assistant with Dr. Ayan Chakrabarti, head of the Vision and Learning Group at WashU
- Designed a novel convolutional neural network architecture for efficient stereo depth estimation in autonomous vehicle settings
- Implemented and tested this model using low-level TensorFlow, and wrote custom ops for GPUs to optimize efficiency
- Paper currently pending review at IROS 2019

Undergraduate Machine Learning Research Assistant, *Swarthmore College* — *Fall 2018 - Present*

- Conducting research with Dr. Ameet Soni using active feature elicitation to improve classification accuracy of machine learning models
- Exploring methods of explaining elicited features for applications in medical diagnoses
- Continuing this research through the academic year

REU Site - Machine Learning in N.L.P. and C.V., *University of Colorado in Colorado Springs* — *Summer 2017*

- Computer Vision research assistant with Dr. Jonathan Venture, now at Cal Poly San Luis Obispo
- Designed and implemented a super-resolution convolutional neural network for localizing fluorescent proteins beyond the diffraction limit
- This work helped earn an NIH grant, allowing the research group at UCCS to continue work on this topic

Undergraduate Computational Physics Research Assistant, *Swarthmore College* — *Summer 2016*

- Conducted early-universe Cosmology research with Dr. Tristan Smith
- Incorporated compensated isocurvature perturbations in existing theoretical models to explain signals in the Cosmic Microwave Background
- Implemented and modified simulation programs (CAMB and CosmoMC) to test this modified theory against data
- Published in Physical Review D: https://journals.aps.org/prd/abstract/10.1103/PhysRevD.96.083508

Teaching and Leadership

Math Clinician — *Fall 2018*

- Runs weekly math clinics open to students in any math course at Swarthmore
- Helps students solve problems and review material in a supportive and pedagogically motivated environment
- Equipped to handle questions in Linear Algebra, Multivariable Calculus, Analysis, Algebra, Topology, and Differential Geometry

Physics Teaching Assistant — *Fall 2017 - Fall 2018*

- Facilitates discussion and answers questions in class, holds weekly problem solving sessions
- Experience in mechanics, electricity and magnetism, optics, and thermodynamics

President, *Swarthmore Physics Society* — *Fall 2018 - Present*

- Runs Physics-oriented engagement events and study breaks within the department and for the larger campus
- Organizes Physics outreach events at disadvantaged schools in the local community to foster academic excitement

Principal Cello, *Swarthmore College Orchestra* — *Fall 2018 - Present*

- Leads cello section by cueing entrances, providing fingerings and bowings, and running independent rehearsals

Honors & Awards

2018 **Best Poster,** Computer Science Major Senior Comprehensive — *Swarthmore College*

2018 **1st Place,** SwatTank (Swarthmore Entrepreneurship Competition) — *Swarthmore College*

2016 **Freeman Scholar,** Complete private lesson scholarship for instrumentalists who show unusual promise — *Swarthmore College*

2016 **Best VR/AR Hack,** Hack Princeton — *Princeton University*

Languages and Technologies

Languages: Python, C, C++, MATLAB
Libraries and Environments: UNIX, Tensorflow, Keras, Scikit