# Kyle **Yee**

STUDENT, COMPUTER VISION RESEARCHER

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## Edu**cation**

**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

## Res**earch 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
- Continuing this research through the academic year, with a potential submission target of ICCV in early 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 research group at 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

## Tea**ching 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

## Hon**ors & Awards**

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| 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* |