Kyle Yee

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EDUCATION

Swarthmore College, *Swarthmore, PA*   Class of 2019
- Candidate for B.A. Honors Mathematics and Computer Science, minor in Physics   GPA: 3.81/4
- *Relevant Coursework:* Deep Learning, Machine Learning, Artificial Intelligence, Topology, Complex Analysis, Real Analysis, Modern Algebra, Data Structures and Algorithms (C++), Computer Systems, Multivariate Calculus, Linear Algebra, Analytical Dynamics, Quantum Theory, Electricity & Magnetism, Mathematical Methods in Physics
- *Freeman Scholar*: Given by the music faculty to students who show unusual promise as instrumentalists or vocalists, providing a complete scholarship for musical instruction

RESEARCH EXPERIENCE

REU – Big Data Analytics, *Washington University in Saint Louis*   Summer 2018 - Present
- Conducting computer vision research advised by Dr. Ayan Chakrabarti, head of the Vision and Learning Group at WashU
- Using deep learning approaches to perform stereo depth estimation in an autonomous vehicle setting
- Working in Tensorflow to design novel neural network architectures optimized for efficiency
- Independently designing and executing experiments to optimize the machine learning model
- Continuing research during the academic year, with intent to publish at a top computer vision conference

REU in Machine Learning, *University of Colorado at Colorado Spring*   Summer 2017
- Conducted computer vision research under the guidance of Dr. Jonathan Ventura, VAST Lab
- Used convolutional neural networks to localize fluorescent proteins at scales beyond the limits of optical instruments
- Worked with Keras and Tensorflow machine learning frameworks
- Incorporated novel methods such as subpixel super-resolution convolutional layers to improve results

Physics Research Assistant, *Swarthmore College*   Summer 2016
- Conducted early-universe cosmology research with Dr. Tristan L. Smith
- Used cosmological models to create theoretical predictions about the Cosmic Microwave Background power spectrum
- Improved upon the Linear Perturbation Theory to incorporate Compensated Isocurvature Perturbations
- Implemented and modified programs (CAMB and CosmoMC) to test theory against data
- Published in Physics Review D (https://journals.aps.org/prd/abstract/10.1103/PhysRevD.96.083508)

TEACHING AND LEADERSHIP EXPERIENCE

Math Clinician, *Swarthmore College*   Fall 2018 - Present
- Holds weekly math clinics, open to any student taking a math class at Swarthmore
- Helps students solve problems and review material in a fun, supportive environment
- Equipped to help in Linear Algebra, Multivariable Calculus, Real Analysis, Modern Algebra, and general math concepts

Physics Teaching Assistant, *Swarthmore College*   Fall 2017 - Present
- Helps supervise and guide class for students taking mechanics and electricity and magnetism
- Runs help sessions for students to work on homework and review course material

President, *Swarthmore Society of Physics Students*   Fall 2018 - Present
- Organizes events and decides the club's goals and direction for Swarthmore's chapter of the Society of Physics students
- Holds study breaks, model rocket launches, and film screenings to keep students engaged in Physics
- Runs Physics outreach events at disadvantaged schools in the local community to foster academic excitement

SwatTank Winner, *Swarthmore College*   Spring 2018
- Won first prize in annual SwatTank Innovation Competition, an annual competition modeled after ABC's Shark Tank
- Created an entire business model from the ground up, and collected real world data from peers to evaluate its viability
- Implemented the first iteration of our business on the Swarthmore campus

Principal Cello, *Swarthmore College Orchestra*   Fall 2018-Present
- Leads cello section by cueing entrances, providing fingerings and bowings, and running independent rehearsals

SKILLS AND HOBBIES

Proficiency in Python, C++, C, Unix environments, TensorFlow, Keras; Familiarity in HTML, CSS, Javascript

Speaks proficient French, basic Mandarin

Loves reading fiction novels, playing chamber music, building mechanical keyboards, road biking, playing bridge, and bowling