KEVIN CALEB EADES

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GitHub: https://github.com/kceades **Website:** https://kceades.github.io/SFwuwei/

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EDUCATION

University of California, Berkeley, *Physics Graduate Student* 2016-present

Harvey Mudd College, *Physics B.S.* with Honor and Distinction Concentration: *Mathematical Physics* 2012-2016

- GPA -- 3.7; Dean's List -- all semesters; Harvey S. Mudd Scholar; Alfred B. Focke Award

Tahoma High School and Green River Community College, 2008 (10)-2012

- *High School Diploma*: GPA -- 4.0; Rank -- 1 of 563; National Merit Finalist; Edmund Maxwell Scholar
- *A.A.*: GPA -- 3.97; Physics Department Award; Math Learning Center Tutor Award

SKILLS

Subjects: Physics, Mathematics, Statistics (intermediate)

Coding: Python, Matlab, LaTex, HTML/CSS (intermediate), C++ (basic), Java (basic)

PROJECTS AND RESEARCH

Supernova Cosmology 2017-present

- In Python, modified web scrapers to gather public domain supernova data; developed and implemented algorithms as well as conventional techniques to process the large-scale data (GBs) efficiently and accurately.
- Wrote models using expectation-maximization Factor Analysis or Principle Component Analysis with k-Fold Cross Validation and a neural net. This model minimizes intrinsic dispersion between supernovae in order to do cosmology and constrain the ratios of dark energy and dark matter to ordinary matter in the universe.

Laser-Driven Fusion 2013-2016

- Innovated techniques for delivering nanospheres to a micron-scale focus of a high-intensity, femtosecond pulsed laser to study a proposed heating mechanism for stochastic heating, a vital step towards self-sustained fusion.
- In Matlab, used first principles to develop both Probabilistic and Monte Carlo simulation models for characterizing nanosphere flight characteristics: achieved microsecond precision for timing the sphere delivery to the focus.
- Completed robust experimental work, collecting and analyzing nanosphere flight data for comparison to the models.
- Wrote a thesis using LaTex: https://github.com/kceades/ugrad_thesis/blob/master/SeniorThesis_CalebEades.pdf
- Created a lab website using HTML/CSS: http://www.physics.hmc.edu/~donlab/index.html

WORK EXPERIENCE

Graduate Student Instructor, University of California, Berkeley 2016-present

Created and employed innovative lesson plans for discussions and labs; wrote and distributed a basic course website with problems and handmade, detailed solutions to help my students; proctored and graded exams

Academic Excellence Tutor, Harvey Mudd College 2014-2016

Tutored freshmen and sophomores taking core physics courses in a drop-in setting; delivered mini-lectures to groups on the fly; prepared and gave thorough, comprehensive exam review sessions

Homework Hotline Tutor, Harvey Mudd College 2013-2016

Over the phone tutor for students from underrepresented or underprivileged school districts in grades 4-12

Math Learning Center Tutor, Green River Community College 2010-2012

Tutored ages 16-80 of all backgrounds; taught myself other subjects in slow periods to help non-math students