


Stanford



Philip Etter

Ph.D. Student in Computational and Mathematical Engineering, admitted Autumn 2017

 Resume available Online

Bio

BIO

I'm a third year PhD student in the Institute for Computational and Mathematical Engineering at Stanford University. My interests lie broadly in the realm of data science and computational mathematics, spanning machine/deep learning, numerical linear algebra, theoretical computer science, and computational physics. In particular, my most recent research focuses on model order reduction, leveraging machine learning and linear algebra techniques to deliver massive performance boosts in many-query physics problems, e.g., Bayesian inference and uncertainty quantification, while simultaneously guaranteeing accurate results. I presented these techniques in talks at SIAM: CSE '19 and at ICIAM '19, and I am currently preparing two different journal publications based on this work. In the past, I've also worked as a data science research intern at Sandia National Laboratories, a software engineering intern at Google, and a research contractor at Bell Labs.

I received my undergraduate degree from Princeton, where I studied mathematics, computer science, and physics. While I was there, I wrote my undergraduate thesis on numerical methods for solitonic boson star evolution and ground state searching, graduating summa cum laude. Before that, I did some research in theoretical optics. And before that, I was interested in graph algorithms. But while I have a very broad background in mathematics and related fields, I'm particularly excited by finding ways of using data to accelerate computation, build fast approximation techniques, and make predictions about the future (and inferences about the present).

Going forward, I want to continue to develop better and faster algorithms by bringing the power of data science to bear on interesting computational and statistical challenges.

My other assorted interests include quantum physics, general relativity, computer graphics, and music.

I prefer tabs to spaces, and vim to emacs.

EDUCATION AND CERTIFICATIONS

- B.A., Princeton University , Mathematics (2017)
- Certificate, Princeton University , Computer Science (2017)
- Certificate, Princeton University , Applied Mathematics (2017)

PERSONAL INTERESTS

I'm currently quite interested in music, particularly in composing and arranging for film. My counterpoint skills are a work in progress, however.

LINKS

- Undergraduate Thesis: https://web.stanford.edu/~paetter/Senior_Thesis.pdf

- Undergraduate Applied Math Research: <https://web.stanford.edu/~paetter/UndergradMathResearch.pdf>

Publications

PUBLICATIONS

- **Online adaptive basis refinement and compression for reduced-order models**

Etter, P. A., Carlberg, K. T.

arXiv.

2019