A. Luke Evans

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Education

University of Maryland, College Park, MD
Ph.D in Applied Mathematics, Emphasis in Scientific Computation — Expected May 2022
Advisers: Maria Cameron and Pratyush Tiwary

San Francisco State University, San Francisco, CA
Master of Arts in Mathematics, GPA: 4.0 — May 2017
Thesis: "Phase Retrieval and Conjugate Phase Retrieval in Paley-Wiener Spaces and $\mathbb{C}^M$"
Adviser: Chun-Kit Lai

Hendrix College, Conway, AR
Bachelor of Arts in Mathematics, GPA: 3.89 — May 2015
Thesis: "Newton's Method In the Complex Plane"
Adviser: Lars Seme

Publications

L. Evans, C.K. Lai. **Conjugate phase retrieval on $\mathbb{C}^M$ by real vectors**. *Journal of Linear Algebra and its Applications*, 587 (2019), 45 - 69.

C. Olson, L. Evans, N. Bayya, J. Edelberg. **A comparison of encoding methods for automated design of optical architectures**. *Proceedings of SPIE, Novel Optical Systems Design and Optimization* XXI, 107460J (2018).

Research

University of Maryland, College Park, Maryland
AMSC 663-664: *Advanced Scientific Computing* Project, advised by Maria Cameron — August 2018 - May 2019
Project: *Computational Methods For the Study of Rare Events in Stochastic Processes*

- Implemented and validated the Fast Marching Method and studied Dijkstra-like Hamilton Jacobi solvers
- Implemented and validated existing techniques for combining manifold learning with ensembles of local simulations to coarse-grain SDE simulations

Naval Research Laboratory, Washington, D.C.
Student Intern, Applied Optics, mentored by Colin Olson — May - August 2018

- Developed evolutionary algorithms for design of optical systems
- Tested optimization solutions with MATLAB-implemented ray tracing

San Francisco State University, San Francisco, CA
Graduate researcher, Dept. of Mathematics, advised by Chun-Kit Lai — August 2017 - May 2018

- Developed 'conjugate phase retrieval', a generalization of the phase retrieval problem, and proved guarantees on recovery of signals
- Extended results on phase retrieval of band-limited functions from Fourier frame measurements

Lawrence Livermore National Laboratory, Livermore, CA
Student Intern, Weapons and Complex Integration, mentored by Walt Nissen — May - August 2016

- Implemented and tested Smoothed Particle Hydrodynamics configurations in Python
- Investigated work in locational optimization for approximation of Voronoi tessellations
- Compared existing methods for particle boundary conditions in spherical SPH setups

Hendrix College, Conway, AR
Undergraduate Researcher, Dept. of Mathematics, advised by Lars Seme — January - December 2014
Funded by Student Undergrad. Research Fellowship, AR Dept. of Higher Ed.
Presented at MAA MathFest, Portland, OR — August 8th, 2014

- Investigated complex dynamics of Newton's method over polynomials
- Approximated Julia sets in Mathematica
- Used symbolic dynamics to describe behavior of the dynamical system

Honors and Awards

San Francisco State University, San Francisco, CA
Recipient of Graduate Student Distinguished Achievement Award — May 2017

- Nominated by math department for significant contributions in research
- Sole mathematics recipient among College of Science and Engineering

Recipient of Achievement Rewards for College Scientists Scholarship (ARCS) — June 2016

Hendrix College, Conway, AR
Magna cum laude, graduation with distinction — May 2015
Recipient of Philip E. Parker Undergraduate Research Award — May 2015

Teaching and Administrative Experience

University of Maryland, College Park, MD
Associate Director, Norbert Wiener Center For Harmonic Analysis and Applications — August 2018 - January 2020

- Organizer for February Fourier Talks 2019 Conference
- Organizer for Jubilee of Harmonic Analysis and Applications Conference, September 2019

Teaching Assistant — August 2017 - May 2018

- T.A for calculus I, calculus II

San Francisco State University, San Francisco, CA
Graduate Teaching Associate — August 2015 - May 2017

- Instructor for college algebra
- T.A for calculus I

Hendrix College, Conway, AR
Tutor, T.A. — August 2013 - May 2015

- Grader for calculus I
- Tutor for pre-calculus through calculus II