Thomas Hogancamp

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EDUCATION

University of Missouri-Columbia **May 2023**
PhD, Mathematics, GPA 3.950 *Columbia, Missouri*

University of Missouri-St. Louis **May 2017**
BS Mathematics, GPA 3.983 *St. Louis, Missouri*
Pierre Laclede Honors Certificate

SKILLS

- **Programming**: Intermediate Python. Experience with C++, Julia , MATLAB, SQL, R, and HTML
- **Data Science**: Experience with Jupyter Notebooks, Pandas, Numpy, SciPy, Scikit-learn, Matplotlib, Scrapy, and Beautiful Soup
- **Machine Learning**: Experience with Tensorflow and PyTorch. Have designed a Physics Informed Neural Network related to my research in Elasticity.
- **Markup Languages**: Advanced LaTeX
- **Communication**: Published mathematical research article and given numerous related talks/presentations at conferences and seminars. Delivered hundreds of lectures in college mathematics.
- **Organizational**: Routinely taught classes with 60+ students per semester. Designed syllabi and class calendar, created assignments, and built course webpages in Canvas and MyOpenMath

RELEVANT COURSEWORK

- Ordinary & Partial Differential Equations
- Applied Math (**Signal Processing**)
- Linear Algebra
- Harmonic Analysis
- Applied Statistics
- Topics in Material Science (**Linear Wave Phenomena**)
- Programming & Data Structures (C++)
- Object Oriented Programming (C++)
- Coding Theory (Error Correcting Codes & **Information Theory**)
- Mathematical Physics (**Statistical Mechanics** and Neural Networks)
- Calculus of Variations
- Measure Theory (Included axiomatic development of Probability Theory)
- Discrete Mathematics

RESEARCH

University of Missouri-Columbia | Dissertation Research **August 2019 – May 2023**

- Research emphasis in **bifurcation theory** and **nonlinear partial differential equations**
- Developed new theoretical tools for quasilinear degenerate-elliptic PDEs that have applications in **nonlinear elasticity** and **gas dynamics**
- Supported in part by the NSF through DMS-1812436

Sam Houston State University | NSF REU **June 2016 – July 2016**

- Learned the foundation of Discrete Morse Theory and explored applications to **Topological Data Analysis** in the context of **medical imaging**
- Worked 40 hours a week throughout June and July

SERVICE

Grade A Plus Academic Support and Enrichment **August 2018 – August 2022**
Volunteer Tutor *Columbia, MO*

- Provided weekly mathematics support for at-risk middle/high school students

CASE Tutoring **Spring 2019**
Volunteer Tutor *Columbia, MO*

- Provided weekly mathematics tutoring services for MU Calculus Students

MU AMS Graduate Student Chapter **Spring 2019 – Spring 2021**
Treasurer *Columbia, MO*

- Completed annual financial reports and maintained budget

EMPLOYMENT

St. Louis Community College **September 2022 – December 2022**
Instructor *St. Louis, MO*

- Taught 18 credit hours in a fully hybrid format. Full time temporary job that I accepted before moving to California.

University of Missouri-Columbia **August 2017 – August 2022**
Instructor and TA *Columbia, MO*

- Primary Instructor for 41 credit hours, and served as a TA for 50 credit hours. Part time.
- Delivered lectures in person, in a hybrid format, and fully online

PUBLICATIONS

- T. Hogancamp, *Broadening global families of anti-plane shear equilibria*, SIAM Journal on Mathematical Analysis, 53 (2021), pp. 5853–5879

Talks and Presentations

- *Anti-Plane Shear Equilibria in the Large*, MU Differential Equations Seminar, University of Missouri-Columbia, April 2023, Invited Talk
- *Twelfth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory*, April 2022, Talk
- *Broadening global families of anti-plane shear equilibria*, MU Differential Equations Seminar, University of Missouri-Columbia, February 2021, Invited Talk
- *KUMUNU-ISU Conference on PDE, Dynamical Systems, and Applications 2021*, presentation