

Thomas Hogancamp

314-971-6678

thogancamp@gmail.com

[Website](#) | [LinkedIn](#)

Education	PhD, Mathematics University of Missouri-Columbia, Columbia, MO Thesis Advisor: Samuel Walsh	May 2023
	BS, Mathematics Pierre Laclede Honors Certificate University of Missouri-St. Louis, St. Louis, MO	May 2017
Experience	ASEE Postdoctoral Research Fellow U.S. Naval Research Laboratory, Monterey Designed and analyzed quantum algorithms for linear and nonlinear partial differential equations, with applications in physics and fluid dynamics. Developed and analyzed quantum circuit constructions for near-term (NISQ) and fault-tolerant frameworks, with an emphasis on linear-combination-of-unitaries (LCU) methods for discrete differential operators. Collaborated with interdisciplinary teams including meteorologists, applied mathematicians, and physicists.	June 2024 – Present
Publications and Preprints	4. R. Demirdjian, T. Hogancamp, A. Gnanasekaran, A. Surana, and D. Gunlycke. Quantum data loading for Carleman linearized systems: Application to the lattice-Boltzmann equation. arXiv:2605.00302 (2026), preprint. 3. T. Hogancamp, R. Demirdjian, and D. Gunlycke. Linear-combination-of-unitaries decomposition for the Laplace operator. <i>Physical Review A</i> 114, 012455 (2026). 2. R. Demirdjian, T. Hogancamp, and D. Gunlycke. Efficient decomposition of the Carleman linearized Burgers' equation. <i>Physical Review A</i> 113, 032408 (2026). 1. T. Hogancamp. Broadening global families of anti-plane shear equilibria. <i>SIAM Journal on Mathematical Analysis</i> 53, 5853–5879 (2021).	
Conference Presentations	4. <i>Linear Combination of Non-Unitaries: Theory, Computation and Applications</i>, Tutorial Session, <i>IEEE Quantum Week 2026</i>, Toronto, Canada, September 18, 2026. Co-organizer and presenter; upcoming. 3. <i>A Linear Combination of Unitaries Decomposition for the Laplace Operator</i>, US CLIVAR Quantum Computing and Sensing for Weather and Climate Applications Workshop, Boulder, Colorado, August 2026. Poster presentation. 2. <i>The Twelfth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory</i>, April 2022. Conference talk. 1. <i>KUMUNU-ISU Conference on PDE, Dynamical Systems, and Applications 2021</i>. Poster presentation.	

Invited Talks	2. <i>Anti-plane shear equilibria in the large</i> , MU Differential Equations Seminar, University of Missouri-Columbia, April 2023	
	1. <i>Broadening global families of anti-plane shear equilibria</i> , MU Differential Equations Seminar, University of Missouri-Columbia, February 2021	
Skills	<i>Technical</i>	
	Mathematics: Ordinary and partial differential equations, linear algebra, variational methods, bifurcation theory, measure theory, harmonic analysis, probability, finite element and finite difference methods.	
	Quantum computing: Algorithm design, resource estimation, LCU methods, Carleman linearization, block encoding, and variational quantum linear solvers (VQLS).	
	Programming: Python; Qiskit (exploratory LCU work for the Laplacian); basic PyTorch; C++ (undergraduate coursework); basic MATLAB; Julia (self-directed exploration).	
Graduate Research	<i>Thesis Research</i>	
	Developed global bifurcation theories for nonlinear PDEs. Applied bifurcation theory to study broadening, loss of ellipticity, and the formation of singularities in elastostatics.	
Teaching Experience	<i>University of Missouri-Columbia</i>	Fall 2017 – Summer 2022
	Intermediate Algebra (Instructor)	
	Trigonometry (Course Coordinator and Instructor)	
	Calculus for the Social and Life Sciences (Instructor)	
	Calculus I (TA)	
	Calculus II (Instructor and TA)	
	Complex Variables for Educators (Instructor)	
	<i>St. Louis Community College</i>	Fall 2022
	Pre-Algebra (Instructor)	
	Intermediate Algebra with Support (Instructor)	
Service	<i>Grade A Plus Academic Support Program</i>	Fall 2018 – Summer 2022
	Provided volunteer math tutoring services to middle and high school students.	
	<i>CASE Tutoring</i>	Spring 2019
	Provided volunteer math tutoring services to MU Calculus students.	
	<i>MU AMS Graduate Student Chapter Treasurer</i>	Spring 2019 – Spring 2021
Additional Qualification Awards	Society of Actuaries Exam P (Probability): passed.	
	<i>University of Missouri-Columbia</i> <i>MU Math Dept. Outstanding Community Service Award</i> , 2019, 2020, 2021, 2022	