

Hieu Huu Nguyen

CONTACT INFORMATION

Department of Mathematics and
Computer Science
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RESEARCH INTERESTS

Wave propagation, parallel-in-time method, numerical linear algebra, multiscale method, Gaussian beam methods, scientific computing, machine learning, deep learning.

EDUCATION

Oden Institute for Computational Engineering and Sciences, UT Austin

Ph.D. in Computational Science, Engineering and Mathematics, May 2020

- Dissertation Topic: Parallel-in-time methods for high frequency wave propagation in heterogeneous media
- Supervisor: Richard Tsai
- GPA: 3.80

M.S. in CSEM, December 2017

University of Minnesota, Twin Cities

B.S. in Physics, December 2013

- Emphasis on computational Physics
- Minor in Mathematics
- GPA: 3.83

WORK EXPERIENCE

Department of Mathematics and Computer Science, University of Basel, Switzerland

- Postdoctoral Researcher, July 2020 - current
- Supervisor: Ivan Dokmanić

Dell Technology, Austin TX

- Data Science Graduate Internship, June 2018 - Aug 2018

PUBLICATIONS

H. Nguyen, I. Dokmanić, M. de Hoop, *Supervised learning planet interior from toroidal modes*. In preparation.

K. Kothari, H. Nguyen, I. Dokmanić, M. de Hoop, *Implicit network representing Earth's interior velocity with ray sampling*. In preparation.

H. Nguyen, R. Tsai, *Numerical wave propagation aided by deep learning*, arXiv:2107.13184 (Aug 2021).

H. Nguyen, R. Tsai, *A stable parareal-like method for the second-order wave equation*, Journal of Computational Physics (2020).

G. Ariel, H. Nguyen, R. Tsai, *θ -parareal schemes*, arXiv:1704.06882 (June 2017).

CONFERENCE TALKS	<i>A stable parareal like scheme for the second-order wave equation</i> , 8 th Parallel-in-Time Workshop, ZiF, Bielefeld, Germany (May 2019).		
	<i>Parallel-in-time for the second-order wave equation</i> , Minisymposium at SIAM Computational Science and Engineering, Spokane, WA (Feb 2019).		
GRANTS AND AWARDS	2019	Juelich Supercomputing Centre Travel Grant to present at the 8 th Parallel-in-Time Workshop, ZiF, Bielefeld, Germany	
	2014–2018	National Initiative for Modeling and Simulation Graduate Research Fellowship, Institute for Computational Engineering and Sciences	
	2014–2016	Vietnam Education Foundation Fellowship	
	2013	Edmond B. Franklin Scholarship, School of Physics and Astronomy, University of Minnesota, Twin Cities	
SEMINAR TALKS AND POSTERS	<i>Data-driven parareal for solutions of the wave equation</i> , University of Basel (Jan 2020).		
	<i>Parallel-in-time coupling of Gaussian beam and Direct Numerical Simulation</i> , Workshop for Advances in Computational Sciences and Engineering, UT-Austin (Mar 2017).		
	<i>θ-parareal for wave equation</i> , Texas Imaging Symposium, UT-Austin (Oct 2018).		
	<i>Gaussian beam method for high frequency wave propagation</i> , Math Jr. Numerical Analysis Seminar, UT-Austin (April 2016).		
TEACHING EXPERIENCE	Fall	2018	Teaching Assistant, Calculus I
	Fall	2017	Instructor Intern, Mathematical Modeling
	Fall	2015	Teaching Assistant, Calculus II
	Spring	2013	Undergraduate Teaching Assistant, Physics II
	Fall	2012	Undergraduate Teaching Assistant, Physics I
EXTENDED PROFESSIONAL COURSE	Sep	2021	Summer School: Wave phenomena : Analysis and Numerics, Karlsruhe Institute of Technology, Karlsruhe
	Aug	2021	11th Zurich Summer School, Institute of Mathematics University of Zurich, Zurich
	May	2018	Wave Imaging in Random media, Department of Mathematics Colorado State University, Fort Collins
	June	2017	Math-to-Industry Bootcamp II, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis
	June	2015	AARMS-PIMS Summer School in Differential Equations and Numerical Analysis, Department of Mathematics, Dalhousie Univeristy, Halifax, Canada
GRADUATE COURSEWORK	<input type="checkbox"/>	Numerical Linear Algebra	
	<input type="checkbox"/>	Mathematical Modeling	
	<input type="checkbox"/>	Functional Analysis	
	<input type="checkbox"/>	Numerical Differential Equations	
	<input type="checkbox"/>	Convex Optimization	
	<input type="checkbox"/>	Multiscale Modeling	
	<input type="checkbox"/>	Electromagnetic theory	
	<input type="checkbox"/>	Acoustics	
	<input type="checkbox"/>	Seismic Imaging	
	<input type="checkbox"/>	Mathematical Methods in Engineering	

SCIENTIFIC
RESEARCH
EXPERIENCE

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|-----------|---|
| 2011–2012 | Rendering art of Traveling Salesperson Problem .
Supervisor: Fadil Santosa, Institute for Mathematics and its Applications, University of Minnesota, Twin Cities. |
| 2011–2012 | Data analysis of neutrino experiment.
Supervisor: Gregory Pawloski, Department of Physics, University of Minnesota, Twin Cities. |
| 2012–2013 | Generation of magnetic field in magnetohydrodynamics.
Supervisor: Thomas Jones, Department of Astronomy, University of Minnesota, Twin Cities. |
| 2014 | Reduced model for chemical reaction systems.
Supervisor: Lam K. Huynh, Institute for Computational Science and Technology,
Institute for Computational Science and Technology, Vietnam. |

RELEVANT
SKILLS

Languages:	Vietnamese (native), English (fluent), German (conversational)
Computer:	Linux, Python, MATLAB, Julia scikit-learn, Pytorch Deep Learning certificate , High Performance Computing, machine learning certificate at Texas Advanced Computing Center