Haroun Meghaichi

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EDUCATION

Ph.D. Mathematics, Virginia Tech. Advisor: S. Adjerid.
Anticipated graduation: May 2024.

M.S. Mathematics, Virginia Tech, 2019.

B.S. Mathematics, University of Science and Technology Houari Boumediene, 2016.

RESEARCH INTERESTS

Numerical analysis of partial differential equations.

Immersed finite element methods for interface problems.

Fluid-structure interaction problems.

PUBLICATIONS

Journal Articles

2024 S. Adjerid, T. Lin and H. Meghaichi *Analysis of the Frenet immersed finite element method for elliptic interface problems* (In progress).

2024 S. Adjerid, T. Lin and H. Meghaichi *A unified immersed finite element error analysis for one-dimensional interface problems BIT*, (accepted). preprint: arXiv:2306.10018

2024 S. Adjerid, T. Lin and H. Meghaichi *A high order geometry conforming immersed finite element for elliptic interface problems Comput. Methods Appl. Mech. Engrg.*, 420, 116703. doi:10.1016/j.cma.2023.116703

2023 S. Adjerid, T. Lin and H. Meghaichi *An immersed discontinuous Galerkin method for wave propagation in acoustic elastic media. J. Comput. Phys.*, 472, 111651. doi:10.1016/j.jcp.2022.111651

INVITED TALKS

2023 *A high order geometry conforming immersed finite element for elliptic interface problems*. The 8th Annual Meeting of SIAM Central States Section, University of Lincoln-Nebraska.

2023 *A unified immersed finite element error analysis for one-dimensional interface problems*. SIAM Southeastern Atlantic Section Annual Meeting, Virginia Tech.

2021 *An immersed discontinuous Galerkin method for wave propagation in acoustic elastic media*. The 16th U.S. National Congress on Computational Mechanics, online.

2021 *An immersed discontinuous Galerkin method for wave propagation in acoustic elastic media*. Finite Element Circus, online.

2019 *An immersed finite element method for wave propagation in acoustic elastic media*. Finite Element Circus, Virginia Tech.

Campus Talks

2024 *High order, geometry conforming immersed finite element methods for interface problems.* Applied Numerical Analysis seminar, Virginia Tech.

2021 *An immersed discontinuous Galerkin method for elastic and acoustic-elastic wave propagation*. Applied Numerical Analysis seminar, Virginia Tech.

2019 *Solution of Coupled Acoustic-Elastic Wave Propagation Problems using an immersed discontinuous Galerkin method*, SIAM student seminar, Virginia Tech.

AWARDS AND HONORS

2023 SIAM Student travel award.

2022 Lee R. Steeneck and Regina Aultice Steeneck Graduate Fellowship ($8,875). College of Science, Virginia Tech.

2021 Outstanding Graduate Teaching Assistant Award. Department of Mathematics, Virginia Tech.

2021 US National Congress for Computational Mechanics Conference Award.

COURSES TAUGHT

MATH 4564	Operational methods: Laplace/Fourier transform and partial differential equations.	(Summer 20, F20, S21, Summer 21, F21, S22, Summer 22, F22, Summer 23)
MATH 4446	Numerical analysis: Interpolation, quadrature and numerical ODEs.	(Summer 20)
MATH 2204	Introduction to multivariable calculus.	(Summer 19)
MATH 2114	Introduction to linear algebra.	(S20, S24)
MATH 1226	Calculus II.	(S19)
MATH 1225	Calculus I.	(F18, F19, Summer 21, Summer 22, Summer 23, F23)

SERVICE

Academic Journal Peer Review

International Journal of Modelling and Simulation, Taylor & Francis.

Departmental service and outreach

- President, SIAM Student Chapter (2018-2019): As the president of the student chapter, I was in charge of organizing biweekly research seminars, which provided a platform for Virginia Tech graduate students, professors, and alumni to present their work.
- Senior Graduate Teaching assistant (2019-2022): I was responsible for co-organizing a biweekly seminar covering a spectrum of subjects ranging from teaching to personal development.
- Mentoring new graduate teaching assistant: I have facilitated the teaching certification process for four graduate students, offering them hands-on classroom teaching opportunities and consistent feedback to help them refine their skills.
- Volunteer at MORE '19 and MORE '20: As a graduate student participant at MORE, I had the chance to share my research experience with aspiring undergraduate students from different universities.

Updated February 2024