Pratyush Potu

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Research Interests

Numerical Analysis of Partial Differential Equations, Finite Element Methods

Education

Brown University   *Aug 2022 – Present*
Ph. D. Candidate in the Division of Applied Mathematics
  ○ **Thesis Advisor:** Johnny Guzmán

University of Texas at Austin   *Aug 2019 – May 2022*
B. Sc. in Mathematics
  ○ Certificate in Scientific Computation and Data Science

Publications and Preprints

1. Guzmán, J., and Potu, P. A framework for analysis of DEC approximations to Hodge-Laplacian problems using generalized Whitney forms, 2025. `https://arxiv.org/abs/2505.08934`

2. Ern, A., Guzmán, J., Potu, P., and Vohralík, M. Local L^2-bounded commuting projections using discrete local problems on Alfeld splits, 2025. `https://arxiv.org/abs/2502.03601`

3. Ern, A., Guzmán, J., Potu, P., and Vohralík, M. Discrete poincaré inequalities: a review on proofs, equivalent formulations, and behavior of constants. *IMA Journal of Numerical Analysis* (2025). `https://doi.org/10.1093/imanum/draf089`

Selected Presentations

  ○ Finite Element Circus, George Mason University, Arlington, VA, Oct. 2025
  ○ Rice University NASC RTG Workshop (Poster), Houston, TX, Oct. 2025
  ○ IMSI Workshop on Discrete Exterior Calculus (Poster), Chicago, IL, Sep. 2025
  ○ EMS School on Mathematical Modelling, Numerical Analysis and Scientific Computing, Kácov, Czech Republic, Jun. 2025
  ○ SIAM Conference on Computational Science and Engineering (CSE25), Fort Worth, TX, Mar. 2025
  ○ AMS Spring Eastern Sectional Meeting, Hartford, CT, Apr. 2025
  ○ Finite Element Circus, Oakland University, Rochester, MI, Apr. 2025

Conference and Workshop Attendance

  ○ Semester Program in Numerical PDEs, ICERM, Providence, RI, Jan.-May 2024
  ○ Finite Element Circus, Brown University, Providence, RI, Apr. 2024
  ○ Finite Element Circus, Bridgewater State University, Bridgewater, MA, Mar. 2023

Teaching and Mentoring

Graduate Teaching Assistant   *Sep 2023 - May 2024*
Brown University
  ○ Statistical Inference I (Fall 2023)
  ○ Applied Partial Differential Equations I (Spring 2024)

Directed Reading Program   *Feb 2024 - Present*
Brown University

- An extracurricular activity where graduate students mentor undergraduate students in a reading project over the course of a semester. Graduate students are responsible for planning the project, weekly meetings and assistance producing a poster.
- Topics mentored: Calculus of Variations (one student), Numerical Linear Algebra (one student), Spectral Graph Theory (three students), Splines (one student), Numerical Analysis (one student).

Academic Service

Society for Industral and Applied Mathematics Student Chapter   *Sep 2023 - Present*
President

- A community of students, postdocs and faculty interested in applied and interdisciplinary mathematics. We organize professional, academic and social events including latex tutorials, industry and internship panels, lightning talks, and competitions.
- Served as Secretary during 2023-2024 academic year.

Applied Math Graduate Student Seminar   *Sep 2023 - Present*
Organizer

- This is a seminar series aimed at showcasing graduate research in Brown Applied Math in an informal setting. Each week a grad student gives a talk about their research or just some interesting mathematics. Audience feedback is also moderated by the organisers to provide an opportunity to learn presentation skills and practice conference talks.

Division of App. Math. Diversity, Equity, & Inclusion (DEI) Committee   *Sep 2024 - Present*
Committee Member

- As a member of the DEI Committee I have worked on a variety of initiatives to foster diversity, equity, and inclusion in the Division. These include discussing inclusive dissemination of resources for career development, contributing to the department DEI action plan, and advocating for changes to the graduate program to better serve all students.

Skills

Software: Python (numpy, FEniCS), C++ (MFEM)

Languages: English, Telugu