

ADITYA VISWANATHAN

University of Michigan – Dearborn
Dept. of Mathematics & Statistics
2014 CASL Building, 4901 Evergreen Road, Dearborn, MI 48128

adityavv@umich.edu

www-personal.umd.umich.edu/~adityavv/

ACADEMIC INTERESTS

Computational Harmonic Analysis, Mathematical Signal Processing, Phase Retrieval, Spectral and High-Order Methods for PDEs, Computational Electromagnetics

EDUCATION

Arizona State University, Tempe, AZ

- Ph.D., Electrical Engineering, August 2010 (Co-Advisors: Anne Gelb and Douglas Cochran)
- M.S., Electrical Engineering, August 2008

R.V. College of Engineering, Bangalore, India (Visvesvaraya Technological University)

- B.E., Electronics and Communication Engineering, June 2005

APPOINTMENTS

University of Michigan – Dearborn, Dearborn, MI

Dept. of Mathematics & Statistics, Associate Professor, September 2023 – present
Dept. of Mathematics & Statistics, Assistant Professor, September 2017 – August 2023

Michigan State University, East Lansing, MI

Dept. of Mathematics, Visiting Assistant Professor, August 2013 – August 2017

California Institute of Technology, Pasadena, CA

Dept. of Computing and Mathematical Sciences, Postdoctoral Scholar, September 2010 – August 2013

SELECTED GRANT FUNDING

2. *Collaborative Research: RUI: Computational Ptychography: Fast Algorithms, Recovery Guarantees, and Applications to Bio-Imaging.* with Yulia Hristova (Co-PI; UM–Dearborn) and Guoan Zheng (Co-PI; UConn.), National Science Foundation (Computational Mathematics program), \$165,904 (UM–Dearborn share), 2020–2023.
1. *GirlsGetMath@Dearborn – A summer math camp for high school students.* with Yulia Hristova (Project Director) and Hyejin Kim, Mathematical Association of America (Tensor Women and Mathematics Program), \$5,325, 2024.

¹Updated May 10, 2024

SELECTED PUBLICATIONS

5. **Phase Retrieval for $L^2([-\pi, \pi])$ via the Provably Accurate and Noise Robust Numerical Inversion of Spectrogram Measurements** (joint with Mark Iwen, Michael Perlmutter, and Nada Sissouno). *Journal of Fourier Analysis and Applications*, vol. 29, no. 8, 2022. ([doi](#))
4. **Fast 2D Phase Retrieval using Bandlimited Masks** (joint with Cyril Cordor[†], Brendan Williams[†], and Yulia Hristova). *Proceedings of the 28th European Signal Processing Conference (EUSIPCO)*, pp. 980–984, 2020, August, Amsterdam, Netherlands. ([doi](#)) [†]*Undergraduate students*
3. **Phase Retrieval from Local Measurements: Improved Robustness via Eigenvector-Based Angular Synchronization** (joint with Mark Iwen, Brian Preskitt, and Rayan Saab). *Applied and Computational Harmonic Analysis*, vol 14, no. 1, 2020, pp. 415–444. ([doi](#))
2. **Fast Phase Retrieval from Local Correlation Measurements** (joint with Mark Iwen, and Yang Wang). *SIAM Journal on Imaging Sciences*, vol. 9, no. 4, 2016, pp. 1655–1688. ([doi](#))
1. **On Reconstruction from Non-uniform Spectral Data** (joint with Anne Gelb, Douglas Cochran, and Rosemary Renaut). *Journal of Scientific Computing*, vol. 51, no. 1–3, 2010, pp. 487–513. ([doi](#))

SELECTED TEACHING AND MENTORING EXPERIENCES

- Instructor (at UM–Dearborn; Fall 2017 – present) for undergraduate and graduate courses including Calculus I, Calculus II, Calculus III, Mathematical Language: Proof and Structures, Introduction to Linear Algebra, Discrete Mathematical Methods in Computer Engineering, Introduction to Numerical Analysis, Applied Linear Algebra, and Independent Studies in Math.
- Supervised (at UM–Dearborn; Fall 2017 – present) six Masters projects as part of the *Applied and Computational Mathematics* graduate program on topics in phaseless imaging, Fourier analysis, and statistical signal processing.
- Served as faculty mentor (Summer 2019 – present) for 2-3 person student groups as part of the summer *Research Experience for Undergraduates (REU)* program at UM–Dearborn on topics in applied mathematics and signal processing.

SELECTED SERVICE ACTIVITIES

University Service (at UM–Dearborn) Steering Committee Member, Cybersecurity Center for Education, Research, and Outreach - CCERO; Member of the following committees: College of Arts, Sciences and Letters (CASL) Dean Search Committee; CASL Practice Based Learning (PBL) Advisory Committee; CASL Curriculum Committee; Dept. of Mathematics & Statistics Faculty Search Committee.

Professional Activities Co-organized mini-symposiums at regional and international conferences such as the SIAM (Society for Industrial and Applied Mathematics) Annual Meeting (mini-symposium titled *Mathematics of Signal Processing, Optimization and Inverse Problems* at Portland, OR, July 2018); Co-organized special workshop on *Phaseless Imaging in Theory and Practice* at the Institute for Mathematics and its Applications (IMA), University of Minnesota, Minneapolis in August 2017.

OUTREACH

Presenter and Faculty Mentor (Summer 2021 – present) for the GirlsGetMath@Dearborn program – a week-long applied math summer camp for high school students; Presenter (Winter 2018 – present) for the Maize and Blue Math Circles middle- and high-school outreach program.