Ajinkya Kadu

503, Hans Freudenthal Building, Budapestlaan 6, 3584 CD Utrecht, The Netherlands

Curriculum Vitae *Last Updated: Oct 15, 2018*

Contact Information

Ph.D. Student
Mathematical Institute
Utrecht University

+31–684–544–914
a.a.kadu@uu.nl
https://ajinkyakadu125.github.io

Education

Mathematical Institute, Utrecht University, The Netherlands **2015 - present**

Ph.D. Candidate, Numerical Analysis and Scientific Computing

- Dissertation Topic: Discrete Seismic Tomography
- Advisors: Dr. Tristan van Leeuwen, Prof. Wim Mulder, Prof. Joost Batenburg
- Interests: Seismic Imaging, Computerized Tomography, Numerical Optimization, Level-Set Method, Total-variation, Convex Analysis, Signal Processing

Indian Institute of Technology Bombay, Mumbai, India **2010 - 2015**

Bachelor and Master of Technology, Department of Aerospace Engineering

- Advisors: Prof. N. Hemachandra, Prof. R. P. Shimpi
- GPA: 8.7/10 (*Specialization*: Operations Research)

Work Experience

Mitsubishi Electric Research Labs, Cambridge, MA, USA May - Oct, **2018**

- Mentors: Dr. Hassan Mansour, Dr. Petros Boufounos
- Worked on inverse scattering problem arising in ground penetrating radar.

University of British Columbia, Vancouver, Canada Jan - Apr, **2016**

- Mentors: Prof. Felix Herrmann, Prof. Eldad Haber
- Worked on development of framework for large-scale inverse problems in geophysics.

Rediff.com Pvt. Ltd., Mumbai, India May - July, **2014**

- Mentor: A. S. Shaja
- Worked on the development of data product 'Stock Portfolio Match' based on Shiny & R.

Honeywell Technology Solutions, Bangalore, India May - July, **2013**

- Mentors: Kartavya Mohan Gupta, Hanumantha Rao Desu
- Worked on integration bench for General Aviation(GA) to recreate flight test scenarios.

Research:

Journal Publications

- **A convex formulation for Discrete Tomography.**
  Ajinkya Kadu, Tristan van Leeuwen,
  (submitted to) IEEE Transactions on Computational Imaging (arXiv: 1807.09196)
- **Salt Reconstruction in Full Waveform Inversion with a Parametric Level-Set Method.** Ajinkya Kadu, Tristan van Leeuwen, Wim Mulder,
  IEEE Transactions on Computational Imaging (Volume: 3 , Issue: 2 , June 2017) (arXiv: 1610.00251)

Conference Proceedings

- **Full-waveform Inversion with Mumford-Shah regularization.**
  Ajinkya Kadu, Rajiv Kumar, Tristan van Leeuwen,
  SEG Technical Program Expanded Abstracts 2018.

- **Decentralized Full Waveform Inversion.**
  Ajinkya Kadu, Rajiv Kumar,
  EAGE Annual Meeting 2018.
- **Parametric Level-Set Full-Waveform Inversion in the presence of Salt Bodies.**
  Ajinkya Kadu, Tristan van Leeuwen, Wim Mulder,
  SEG Technical Program Expanded Abstracts 2017.
- **A parametric level-set method for partially discrete tomography.**
  Ajinkya Kadu, Tristan van Leeuwen, Joost Batenburg,
  International Conference on Discrete Geometry and Computer Imagery, 2017.(arXiv: 1704.00568)
- **A parametric level-set approach for seismic full-waveform inversion.**
  Ajinkya Kadu, Tristan van Leeuwen, Wim Mulder,
  SEG Annual Meeting Expanded Abstracts 2016

News Articles

- Geometric Imaging for Subsurface Salt Bodies.
  Tristan van Leeuwen, Ajinkya Kadu, Wim Mulder, *ERCIM News 2017.*
- An Introduction to Seismic Imaging and Current Challenges.
  Ajinkya Kadu, Wim Mulder, (to appear in) *SIAM Online News 2018.*

Conferences

Key Presentations

- Society of Exploration Geophysics Annual Meeting, Houston, USA — Sep 2017
- Discrete Geometry for Computer Imagery, Vienna, Austria — Sep 2017
- Society of Exploration Geophysics Annual Meeting, Dallas, USA — Oct 2016
- Computational Sciences for Future Energy Conference, Utrecht, Netherlands — Oct 2016

Invited Talks

- SIAM Conference on Geosciences, Erlangen, Germany — Sep 2017
- Topology Optimization Group Meeting, TU Delft, Netherlands — Aug 2017
- SIAM Annual Meeting, Pittsburgh, PA — July 2017
- Biweekly Tomomeeting, Computational Imaging Group, Amsterdam — Jan 2017
- Mini-Symposium on Seismic Imaging, Delft, Netherlands — May 2016
- Seismic Seminar, SLIM Group, Vancouver, Canada — Apr 2016

Academic Experience and Achievements:

Scholastic Achievements

Travel Awards

- SIAM Student Chapter Representative at SIAM AN17, Pittsburgh — July 2017
- INdAM Mathtech Workshop on Biomedical Imaging, Rome, Italy — Feb 2017
- SIGMA Workshop, CIRM Marseille, France — Nov 2016
- NWO International Research Travel Grant to visit University of British Columbia — Jan 2016

Student Awards

- Received Best Poster Award at NWO NDNS+ Workshop at Twente, NL. — June 2016
- Awarded Shell-NWO's CSER Fellowship to pursue graduate studies in Netherlands. — 2015-19
- Received Graduate Student Fellowship from Govt. of India for Master degree. — 2015
- Secured AIR-771 in IIT-JEE 2010 among 0.47 million students across India. — 2010
- Secured High Distinction in Maths Olympiads conducted by Maharashtra state Govt. — 2005-08

Graduate Coursework

- ❑ Wavefield Imaging
- ❑ Inverse Problems
- ❑ Machine Learning
- ❑ Convex Optimization
- ❑ Randomized Linear Algebra
- ❑ Ordinary Differential Equations
- ❑ Partial Differential Equations

Technical Skills

- *Languages*: C/C++, Python, HTML, CSS, JavaScript
- *Packages*: MySQL, MATLAB, Mathematica, Julia
- *Operating System*: Mac, GNU/Linux, Windows
- *Optimization Packages*: Gurobi, CVX, OSQP, CPLEX, MOSEK, TOMLAB
- *Deep Learning Packages*: scikit-learn, PyTorch, TensorFlow

Teaching Experiences

Teaching Assistant – Utrecht University

- WISB 251: Numerical Analysis — Nov 2017 - Present
- WISB 356: Introduction to Scientific Computing — Jan - Apr 2017
- WISB 251: Numerical Analysis — Nov 2016 - Jan 2017

Teaching Assistant – IIT, Bombay

- AE 151: Introduction to Aerospace Engineering — Jan - Apr 2015
- AE 308: Engineering Design Optimization — July - Nov 2014

Memberships

- Society for Industrial and Applied Mathematics (SIAM)
- Institute of Electrical and Electronics Engineers (IEEE)
- Werkgemeenschap Scientific Computing (WSC)
- Society of Exploration Geophysics (SEG)

Extracurricular Activities:

Service

Founding Member, **SIAM Student Chapter**, Utrecht University (2017)

- Spearheaded the formation of chapter and managing its website and social awareness.
- Represented student chapter at SIAM Annual Meeting 2017 at Pittsburgh, PA.

Coordinator, **Department Academic Mentorship Program**, IIT Bombay (2014-15)

- Led a team of 19 mentors to provide academic support to 120 students.
- Implemented '*Progress Review System*' to ensure accountability of team & progress of students.

Journalism

- Served as a Chief Editor for *Airspace* magazine, India's first annual aviation magazine (2015).
- Published articles on *Indian Airlines* and *Healthcare* at Rediff Labs; viewership of more than 5K.

Sports

- Finished in Top 10 at *Thane 10K Marathon* among $\sim 60,000$ contestants (2014).
- Part of winning team of *Aerospace Cricket Tournament* for 3 years consecutively (2011-13), Awarded best bowler and an all-rounder every year.

References [1]

- **Tristan van Leeuwen**,
  Assistant Professor (*Tenure-track*),
  Mathematical Institute, Utrecht University.
- **Wim A. Mulder**,
  Professor in Geophysics, Delft University of Technology,
  Researcher, Shell Global Solutions International B.V.
- **Joost Batenburg**,
  Group Leader, Computational Imaging, Centrum Wiskunde Informatica(CWI),
  Professor of Discrete Mathematics & Tomography, Leiden University.

[1] available on request