# Curriculum Vitaé: Arushi Saxena

## Education

**Center for Earthquake Research and Information** — University of Memphis, TN
PhD in Geophysics — Aug. 2015 – May 2020
Advisor: Dr. Eunseo Choi
Thesis Title: *Investigating intraplate seismicity in the Central and Eastern US: Linking observations and numerical models*

**Indian Institute of Technology** — Roorkee, India
Integrated Master and Bachelor of Technology in Geophysics — Aug. 2009 – Aug. 2014
Advisor: Dr. Rambhatla G. Sastry
Thesis Title: *Non invasive hydraulic conductivity estimation using microgravity survey*

## Professional Experience

**Assistant Project Scientist,** University of California, Davis — Aug, 2024 – Present
**Researcher,** SETI Institute — Jun, 2024 – Aug, 2024
**Post-doc,** Math and Statistical Sciences, Clemson University — Jul, 2023 – Jun, 2024
**Post-doc,** Geological Sciences, University of Florida — June, 2020 – Jun, 2023
**Graduate Research Assistant,** University of Memphis — Aug, 2015 – May, 2020
**Junior Geophysicist,** Sterling Oil and Gas, Nigeria — July, 2014 – May, 2015
**Graduate Research Assistant,** Indian Institute of Technology, India — Jun, 2013 – Jun, 2014

## Publications

⋆ Fraters, M. R., Billen, M. I., Gassmöller, R., **Saxena, A.**, Heister, T., Li, H., & Wang, Y. **(Sep 2024)**. The Geodynamic World Builder: A planetary structure creator for the geosciences. *Journal of Open Source Software*, 9(101), 6671.

⋆ **Saxena, A.**, Dannberg J., Gassmöller, R., Fraters, M., Heister, T., & Styron, R. **(Aug 2023)**. High-resolution mantle flow models reveal importance of plate boundary geometry and slab pull forces on generating tectonic plate motions. *J. of Geophys. Res.: Solid Earth*, 128 (8)

⋆ Lee, S., **Saxena, A.**, Song, J. H., Rhie, J., & Choi, E. **(May 2022)**. Contributions from lithospheric and upper-mantle heterogeneities to upper crustal seismicity in the Korean Peninsula. *Geophys. J. Int.*, 229(2)

⋆ Chatterjee, A., **Saxena, A.**, Aslam, K., Van Alstine, A., & Zeb, M. S. **(May 2022)**. The variation of b-Value of earthquakes during COVID-19 lockdowns: Case studies from the Cascadia Subduction Zone and New Zealand. *J. of Info. Manag.*, 21

⋆ **Saxena, A.**, & Langston, C. A. **(Feb 2022)**. Detecting lithospheric discontinuities beneath the Mississippi Embayment using S-wave receiver functions. *Geophys. J. Int.*, 228(2)

⋆ **Saxena, A.**, Choi, E., Powell, C. A., & Aslam, K. S. **(Jun 2021)**. Seismicity in the central and southeastern United States due to upper mantle heterogeneities. *Geophys. J. Int.*, 225(3)

⋆ Geng, Y., Powell, C. A., & **Saxena, A. (Oct 2020)**. Joint local and teleseismic tomography in the central United States: exploring the mantle below the upper Mississippi Embayment and the Illinois Basin. *J. of Geophys. Res.: Solid Earth*, 125(10)

## Other Publications

- **Saxena, A.**, Heister, T. **(Nov 2023)**. Mantle flow model *Interactive visualization of our global mantle flow models*
- **Saxena, A.**, Fraters, M. **(Jun 2021)**. Earthquakes within plates *blog of the Geodynamics Division of the European Geosciences Union*
- **Saxena, A.**, Heister, T. **(Aug 2021)**. Starting Earth Models *blog on Integrated Geodynamic Earth Models*,
- **Saxena, A.**, Fraters, M. **(Dec 2020)**. Across Borders and Sectors *blog on Geodynamics Division of the European Geosciences Union*

## Ongoing Projects

- **Saxena, A.**, Dannberg J., Gassmöller, R., Fraters, M., & Heister, T., From data to dynamics: Integration of geophysical constraints in global mantle circulation models
- **Saxena, A.**, Naliboff, J., Hwang, L., and Baker-Dunn, J., Modular teaching resources in Geodynamics using open-source software
- Dannberg, J., Fraters, M., Gassmöller, R., Li., R. & **Saxena, A.** , Subduction initiation due to plunge in grain size

## Selected Invited Talks

- AGU Fall Meeting, *Dynamics of Central and Eastern US: Interplay of local and far-field forces on surface deformation*
- CSIR Fourth Paradigm Institute, India, *Using ASPECT to develop mantle convection models*, **Fall 2025**
- University of California, Davis, *Linking mantle dynamics with surface tectonics at regional and global scales*, **Fall 2024**
- Frontera User Meeting, *Integration of geophysical constraints in global mantle flow models for insights into plate tectonics*, **Summer 2024**
- Seismological Society of America Annual Meeting, *Integration of geophysical constraints in global mantle flow models for insights into plate tectonics*, **Spring 2024**
- ASPECT User Meeting, *From Data to Dynamics: Integration of geophysical constraints in global mantle flow models for insights into plate tectonics*, **Spring 2024**
- ASPECT User Meeting, *High-resolution mantle flow models reveal importance of plate boundary geometry and slab pull forces on plate motions* , **Spring 2023**
- Pennsylvania State University, *Developing geodynamic models to investigate intraplate tectonics and global plate-driving forces*, **Spring 2023**
- Center for Earthquake Research and Information, University of Memphis, *Developing Geodynamic Models to Investigate Intraplate Tectonics and Global Plate-driving Forces*, **Fall 2022**

## Funding

⋆ **Co-PI** in "Computational Infrastructure for Geodynamics - Community Code Scaling", **Jun 2021–Aug 2022** , *PI*: Lorraine Hwang, *Co-PIs*: Rene Gassmöller, Timo Heister, Hiroaki Matsui and Arushi Saxena

**Funding Agency**: Texas Advanced Computing Center $63,173.70

⋆ **Co-PI** in "Computational Infrastructure for Geodynamics - Community Code Scaling", **Aug 2022–Aug 2023**, **PI**: Lorraine Hwang, *Co-PIs*: Rene Gassmöller, Timo Heister, Hiroaki Matsui, Arushi Saxena, John Naliboff, Nick Featherstone and Wolfgang Bangerth

**Funding Agency**: Texas Advanced Computing Center $67,813.2

⋆ **Co-PI** in "Computational Infrastructure for Geodynamics - Community Code Scaling", **Aug 2023–Aug 2024**, **PI**: Lorraine Hwang, *Co-PIs*: Rene Gassmöller, Timo Heister, Hiroaki Matsui, Arushi Saxena, Menno Fraters and Juliane Dannberg

**Funding Agency**: Texas Advanced Computing Center $72,504

⋆ **Co-PI** in "Computational Infrastructure for Geodynamics Science Gateway and Community Codes for the Geodynamics Community", **Sep 2024–Aug 2025**, *PI*: Lorraine Hwang, *Co-PIs*: Arushi Saxena

**Funding Agency**: Texas Advanced Computing Center $100,091

⋆ **Co-PI** in "Computational Infrastructure for Geodynamics - Community Code Scaling", **Dec 2024–Nov 2025**, *PI*: Lorraine Hwang, *Co-PIs*: Timo Heister, Hiroaki Matsui, and Arushi Saxena

**Funding Agency**: Texas Advanced Computing Center $70,389

⋆ **Collaborator** in "CIG Science Gateway and Community Codes for the Geodynamics Community", Aug 2022–Aug 2024, *PI*: Lorraine Hwang, *Co-PIs*: Timo Heister, John Naliboff, Juliane Dannberg, Rene Gassmöller, Mohamed Gouiza,

**Funding Agency**: ACCESS Allocation Review Committee $38,261.40

⋆ **Collaborator** in "Improving and Bringing the Geodynamic World Builder into the CIG community", Jan 2022–July 2022, *PI*: Menno Fraters,

**Funding Agency**: Computational Infrastructure for Geodynamics $49,768.67

## Fellowship & Grants

**Travel grant** UC Davis Academic Federation 2025 $800

**Research Fellowship** Frontier Development Lab Fellowship, SETI Institute 2024 $8000

**Travel grant** Eastern Section of Seismological Society of America 2019 $500

**Travel grant** American Geophysical Union 2017 $500

**Graduate Research Scholarship** Graduate Aptitude Test in Engineering 2013-2014 INR 12,000

**Summer Research Fellowship** Indian Academy of Sciences 2011 INR 6,000

## Service

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| **Organizer** of CIG webinar series on Visualization in Geodynamics | 2025 |
| **Technical editor**, Geodynamica | 2025– |
| **Volunteer Judge**, Outstanding Student Presentation Award, AGU Fall Meeting | 2020–2024 |
| **Session convener** of Exploring Multiscale Solid-Earth Dynamics Using Computational Methods and High-Performance Computing, AGU Fall Meeting | 2021 |
| **Blog Editor**, European Geophysical Union: Geodynamics | 2020-2022 |
| **Graduate Student Representative** at Center for Earthquake Research and Information, University of Memphis | 2017-2019 |
| **Secretary**, Society of Exploration Geophysicists—Student Chapter at University of Memphis | 2016-2018 |

## Teaching Experience

- **Course Instructor** of GLY 4450, GLY 5455: Introduction to Geophysics, University of Florida, Spring 2022
- **Substitute Instructor** Introduction to Geodynamics, University of Memphis, Fall 2018

## Mentoring Experience

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| Erika Petterson, Undergraduate student, University of California Davis, | 2025–Present |
| Kate Schert, Undergraduate student, University of Florida | 2020–2021 |
| Sungho Lee, Graduate student, University of Memphis | Summer 2021 |

## Professional Development

### Peer Review

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| NSF-Geophysics Spring Panelist | 2024 |
| NSF-Geophysics Proposals: 3 | 2020–Present |
| Geophysical Journal International: 1 | 2021–Present |
| Geochemistry, Geophysics, Geosystems: 2 | 2022–Present |

### Code Development

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| Contributor of **ASPECT**, community geodynamic modeling software which has been used in over 112 publications | 2017–Present |
| Contributor of **GeodynamicWorldBuilder**, open-source software used for setting complex initial conditions in geodynamic models | 2020–Present |
| Maintainer of **GeodynamicWorldBuilder**, open-source software used for setting complex initial conditions in geodynamic models | 2024–Present |

**Field Deployment**

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| Nodal Seismometers in Iris Community Wavefields Experiment, Oklahoma, US | Summer 2016 |
| Gravimeter at Indian Institute of Technology, Roorkee, India | 2013–2014 |
| GPR, Institut national de la recherche scientifique, Quebec, Canada | Summer 2013 |

## Education & Outreach

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| **Volunteer**, Picnic Day, Meteorite collection Department of Earth and Physical Science | 2025 |
| **Guest Speaker**, Scientist in Every Florida School Middle Schools in Florida | 2020-2023 |
| **Volunteer**, Can you Dig it? : A partner event with University of Florida to showcase Earth Science to general public, Florida Museum | 2022-2023 |