

Education

- 2020-2024 **Ph.D.** Tata Institute of Fundamental Research - Centre for Applicable Mathematics
Supervisor: Prof. Praveen Chandrashekar.
- 2018–2020 **M.Sc. in Mathematics** Tata Institute of Fundamental Research - Centre for Applicable Mathematics
Percentage - 87.25
First class with distinction
- 2014-2017 **B.Sc. (Honours) in Mathematics** Sri Venkateswara College, Delhi University
Percentage - 83
- 2012-2014 **CBSE, AISSCE** Nosegay Public School
Percentage - 92.4
- 2010-12 **CBSE, AISSCE** Nosegay Public School
CGPA - 9.6/10

Publications

- 2022 Arpit Babbar, Sudarshan Kumar Kenettinkara, and Praveen Chandrashekar. “Lax-wendroff flux reconstruction method for hyperbolic conservation laws”. *Journal of Computational Physics* 467 (2022)
<https://doi.org/10.1016/j.jcp.2022.111423>

Work in Progress

- “Domain-invariant MUSCL-Hancock blending limiter for Lax-Wendroff schemes.” with Sudarshan Kumar Kenettinkara, and Praveen Chandrashekar
- “**Neural networks** for computing blending coefficient for Lax-Wendroff blending schemes.” with Deep Ray, Praveen Chandrashekar, Vaishnavi Sharma
- “Lax-Wendroff schemes for viscous problems on unstructured, curvilinear meshes” with Praveen Chandrashekar
- “Error based time stepping schemes for single step evolution methods” with Praveen Chandrashekar

Technical skills

| Level | Languages | Operating systems, software and packages |
|--------------|---------------|--|
| Advanced | Julia, Python | Trixi.jl, git, Linux, $\text{T}_{\text{E}}\text{X}_{\text{MACS}}$, $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, Windows |
| Intermediate | C++ | TensorFlow, Flux.jl, DEAL.II, DifferentialEquations.jl, Paraview, VisIt |
| Basic | Fortran | clawpack, HOHQMesh, macOS |

Academic achievements

Scholarships

- 2018-Present **TIFR-CAM Research fellowship**
Institute Awards
- 2017 Certificate of merit for the best academic performance at IISER Mohali
National competitions
- 2017 All India Rank (AIR) 55 in Council of Scientific and Industrial Research - National Eligibility Test (CSIR - NET), thus qualifying for Junior Research Fellowship
- 2017 AIR 22 in IIT-JAM, the nationwide M.Sc. entrance exam for IITs

Talks

- 2023 "Error based time stepping for Lax-Wendroff Flux Reconstruction" at Indo-German conference on Computational Mathematics (IGCM), organized by CDS IISc - Bangalore and IWR Heidelberg Germany
- 2022 "Lax-Wendroff Flux Reconstruction for hyperbolic conservation laws" during visit at IISER-Trivandrum

Teaching Experience

- 2023 *Numerical Analysis*
Teaching, tutorials, software support, prescribing assignments and exams, grading
- 2022 *National Centre for Mathematics (NCM) - Numerical Methods for Partial Differential Equations*
Tutorial, software support
- 2022 *Statistical learning, Summer Workout in Mathematics (SWIM), TIFR-CAM*
Discussions
- 2022 *Python programming, Summer Workout in Mathematics (SWIM), TIFR-CAM*
Tutorials, recitations, discussions
- 2022 *Computational Methods of PDEs*
Tutorials, software support, recitation, discussion
- 2021 *Computational Methods of PDEs*
Recitations, software support, assignment evaluation, discussions
- 2020 *Real Analysis*
Assignment evaluation, discussions

Referee Service

- 10th International Congress on Industrial and Applied Mathematics (ICIAM) 2023, Tokyo

Workshops

- 2022 NCM Workshop - Numerical Methods for Partial Differential Equations, IISER - TVM
- 2022 IGP/IWR School on *Hardware aware scientific computing*
Mini project - *Performance analysis of the CFD code HiFlow3*
- 2019 NCM Advanced Instructional School - Geometric analysis, IIT Bombay
- 2019 NCM Advanced Instructional School - Geometric measure theory, IIT Madras

References

- Professor Praveen Chandrashekar
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- Professor Sudarshan Kumar Kenettinkara
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