RAHUL RAJU PATTAR

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PROFILE

I am a quantitative researcher specializing in the research and development of quantitative finance-based technology and strategies for trading in financial markets. I am a trained applied mathematician with a strong research background and experience in mathematical analysis of partial differential equations (PDEs) modeling physical applications.

WORK

1. **Quantitative Researcher**, NX Block Trades Pvt Ltd, Noida — *Nov 2024 - Present*
2. **Postdoctoral Researcher**, TIFR-CAM, Bengaluru — *Dec 2022 - Nov 2024*
3. **Visiting Researcher**, TIFR-CAM, Bengaluru — *Jul 2022 - Nov 2022*

EDUCATION

Sri Sathya Sai Institute of Higher Learning (SSSIHL)

- **PhD** in Mathematics (Certificate, Thesis) — *2017-'22*
- **M.Sc.** in Applied Mathematics with distinction (Certificate, Marksheet) — *2015-'17*
- **B.Sc.(Hons)** in Mathematics and Computer Science with distinction (Certificate, Marksheet) — *2012-'15*

SCHOLARSHIPS AND AWARDS

1. UGC-CSIR Senior Research Fellowship — *2019-'22*
2. UGC-CSIR Junior Research Fellowship (**all India Rank 154**) (Award letter) — *2017-'19*
3. GATE- Mathematics (**all India Rank 217**) (Certificate) — *2017*
4. Gold Medal for Best Academic Performance in M.Sc. Applied Mathematics — *2017*
5. INSPIRE Scholarship from Dept. of Science and Technology, Govt. of India (Link) — *2012-'17*
   The scholarship is awarded to top 1% of 12th board exam results or eligible ranks from JEE/NEET.

SKILLS

Soft	Technical
❑ Problem Solving	❑ Programming: Python, C++, C
❑ Communications	❑ Quantitative concepts for Financial Engineering
❑ Research Focus	❑ Numerical Methods (PDEs & Statistics)
❑ Teamwork	❑ Data Mining

CERTIFICATIONS

1. **Certificate Program in Quantitative Finance and Risk Management** (Certificate) — *Jun 2024*
   Issued by Indian Institute of Quantitative Finance (IIQF)
2. **Applied Data Science Lab**, WorldQuant University — *(Ongoing)*
3. **Algorithmic Trading and Portfolio Management**, NTPEL and IIT-K (Certificate) — *Oct 2023*

INDUSTRY EXPERIENCE

NX Block Trades Pvt Ltd (Nov. 2024 - Present)

[1] Phrases in **blue** are hyperlinked to relevant information.

ACADEMIC PROJECTS

■ **Inverse Problem for Weighted Divergent Beam Ray Transform** (2023−′24)**:** Techniques from Fourier analysis and functional analysis were used to study reconstruction, unique continuation and stability issues for divergent beam ray-transforms which are the main mathematical tools for computerized tomography.

- Jathar, S.R., Kar, M., Krishnan, V. P., and Pattar, R. R. (2024), Weighted Divergent Beam Ray Transform: Reconstruction, Unique Continuation and Stability. (Submitted to SIAM JMA)

■ **Inverse Boundary Value Problem for a Polyharmonic Operator in Two Dimensions** (2022−′23)**:** Techniques from complex and Fourier analysis were used to establish uniqueness result for inverse boundary value problem for polyharmonic operator with lower order perturbations related to Love-Kirchhoff plate theory in 2 dimensions.

- Bansal, R., Krishnan, V. P., and Pattar, R. R. (2023), Determination of Lower Order Perturbations of a Polyharmonic Operator in Two Dimensions, Journal of Inverse and Ill-posed Problems. (Link)

■ **Well-posedness of Singular Hyperbolic Cauchy Problems** (2017−′22): Pseudo-differential calculus and microlocal techniques were used to study the loss of energy for the solutions (waves) to certain singular hyperbolic PDEs that govern wave propagation in inhomogeneous (highly oscillatory and irregular refractive index) media. Applications: Cosmology and crystallography. Novel geometrical methods were developed to address the problem that filled the 18-year-old research gap (compare this article with ours). *Publications:*

- *Pattar, R. R. and Kiran, N. U. (2021), Global well-posedness of a class of strictly hyperbolic Cauchy problems with coefficients non-absolutely continuous in time. Bulletin des Sciences Mathématiques, 171, 103037.* (Link)
- *Pattar, R. R., Kiran, N. U. (2022) Energy estimates and global well-posedness for a broad class of strictly hyperbolic Cauchy problems with coefficients singular in time, Journal of Pseudo-differential Operators and Applications, 13, 9.* (Link)
- *Pattar, R. R., Kiran, N. U. (2022) Strictly hyperbolic Cauchy problems on $\mathbb{R}^n$ with unbounded and singular coefficients. Annali dell'Universita di Ferrara, 68, 11–45.* (Link)
- *Pattar, R. R., Kiran, N. U. (2022) Global well-posedness of a class of singular hyperbolic Cauchy problems, Monatshefte für Mathematik, 200, 335–357.* (Link)

TEACHING EXPERIENCE

1.	Functional Analysis(Graduate Course)	2019
2.	Linear Algebra, (Under graduate Course)	2018
3.	Measure Theory(Graduate Course)	2018

LANGUAGES

English (Advanced spoken and written), Kannada (Native), Hindi (Basic)