

RAHUL RAJU PATTAR

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PROFILE

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

WORK EXPERIENCE

- Quantitative Researcher**, [BitQCode Capital](#), Bengaluru *Mar 2025 - Present*
 - Part of the team that founded the Global Macro Desk, leading strategic direction and daily operations.
 - Deployed multi-asset momentum strategies (FX, Commodities, Crypto, Equities) achieving +30% annualized returns with 10% lower drawdowns.
 - Engineered statistical arbitrage models to generate uncorrelated alpha and maximize the portfolio's risk-adjusted returns.
 - Developed a crypto mean-reversion model in collaboration with R&D, utilizing mathematical optimization to cut drawdown by 50%.
- Quantitative Researcher**, [NX Block Trades Pvt Ltd](#), Noida (remote) *Nov 2024 - Feb 2025*
 - Partnered with traders to design and analyze sophisticated options trading strategies, developing and refining advanced pricing models to optimize performance and accuracy.
- Postdoctoral Researcher**, [TIFR-CAM](#), Bengaluru *Jul 2022 - Nov 2024*
 - Researched and published research articles on qualitative and quantitative properties of certain ray-transforms which are the main mathematical tools for computerized tomography.

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 with distinction ([Certificate](#), [Marksheet](#)) *2012-'15*

SCHOLARSHIPS AND AWARDS

- UGC-CSIR Senior Research Fellowship *2019-'22*
 - UGC-CSIR Junior Research Fellowship (**all India Rank 154**) ([Award letter](#)) *2017-'19*
 - GATE- Mathematics (**all India Rank 217**) ([Certificate](#)) *2017*
 - Gold Medal for Best Academic Performance in M.Sc. Applied Mathematics *2017*
 - 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.

CERTIFICATIONS

- Certificate Program in Quantitative Finance and Risk Management** ([Certificate](#)) *Jun 2024*
- Algorithmic Trading and Portfolio Management**, [NTPEL](#) and [IIT-K](#) ([Certificate](#)) *Oct 2023*

TEACHING ASSISTANCE

- Functional Analysis (Graduate Course) *2019*
- Linear Algebra (Under graduate Course) *2018*
- Measure Theory (Graduate Course) *2018*

¹Phrases 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*, *Inverse Problems*, 41, 095004. ([Link](#))

■ **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. *Publication:*

- Bansal, R., Krishnan, V. P., and Pattar, R. R. (2025), *Determination of Lower Order Perturbations of a Polyharmonic Operator in Two Dimensions*, *Journal of Inverse and Ill-posed Problems*, 33, 1, 1-9. ([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'Università 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](#))

QUANTITATIVE FINANCE PROJECTS

■ **Backtesting Custom Portfolios against S&P 500 Index: Return and Risk Analysis (2024)**

In this project, the performance of certain custom portfolios consisting of the 20 components of the S&P 500 index are back-tested against the index by conducting a comprehensive study of return and risk analysis. ([Link to GitHub repository.](#))

■ **DV01 Risk of Puttable Bond (2024)** In this project, the price of a puttable bond is calculated along with its DV01 risk and time of maximum exposure. ([Link to GitHub repository.](#))

LANGUAGES

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