

# Rahul Konar

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India

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GitHub: RTheKonar

## Education

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2023 - Present	<b>Bachelor of Statistics(Honours)</b> Indian Statistical Institute
2023	<b>All India Senior Secondary Certificate Examination</b> CBSE Percentage: <b>97.40%</b>
2021	<b>All India Secondary School Examination</b> CBSE Percentage: <b>90.5%</b>

## Projects

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- **An Analysis of Unbalanced Economic Growth in India and its Causes**  
**November 2024**  
**Project Guide:** *Prof. Ayanendranath Basu, Interdisciplinary Statistical Research Unit, ISI Kolkata*  
Performed statistical analysis on *Indicus* "Development Landscape" and "District GDP" datasets, to analyze the nature of economic growth across Indian states. Found strong evidence for divergence between states, and with the exception of a few states, there was no strong evidence for convergence within states.
- **Pairs Trading Strategy**  
**May 2024 - July 2024**  
**Project Guide:** *Prof. Puneet Pasricha, Dept. of Mathematics, IIT Ropar*  
Using NIFTY data from 2005 to 2023, calculated Relative Strength Index of various stocks and implemented a Pairs Trading Strategy based on them, generating positive returns.
- **Exploring Cross Correlation using shuffles of M**  
**March 2024 - April 2024**  
**Project Guide:** *Prof. Arnab Chakraborty, Applied Statistics Unit, ISI Kolkata*  
Nelsen, in his book **Introduction to Copulas** discusses a proof regarding the arbitrary closeness of joint distribution of two independent random variables and two completely dependent random variables. Now, Chatterjee Correlation Coefficient claims to detect all types of independence. The project investigates this claim, and under what conditions it holds.
- **Chroma Keying**  
**September 2023-December 2023:**  
**Project Guide:** *Prof. Arnab Chakraborty, Applied Statistics Unit, ISI Kolkata*  
Designed a Chroma-Keying program to replace images with uniform static background with a different background, with an accuracy of 96%.
- **Robust Linear Regression**  
**July 2023- December 2023:**  
**Project Guide:** *Prof. Malay Bhattacharyya, Machine Intelligence Unit, ISI Kolkata*  
Implemented the GD+ Algorithm as proposed by Scetbon and Dohmatob in their paper titled: "**Robust Linear Regression: Gradient Descent, Early Stopping Strategies and Beyond**" published in AIS-TATS.
- **Intent Classification**  
**September 2023**  
**Project Guide:** *Prof. Malay Bhattacharyya, Machine Intelligence Unit, ISI Kolkata*

Implemented a Bag-of-Words model to classify given text with assigned labels, making use of TF-IDF Algorithm, as part of the competition **IndoML Datathon 2023**.

## Key Courses Taken

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- **Regular Coursework:** Statistical Methods, Stochastic Processes, Discrete Mathematics, Differential Equations, Macroeconomics
- **Additional Courses:** Deep Learning
- **Completed Courses:** Probability Theory, Real Analysis, Linear Algebra, Introduction to Programming and Data Structures, Numerical Analysis, Algebraic Structures, Microeconomics

## Achievements

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1. **Simon Marais Mathematics Competition:** Selected in the top quartile in Pairs category in SMMC 2024
2. **NTSE Scholarship:** Selected for NTSE Scholarship, a prestigious scholarship for school students at the secondary level, by Govt. of India in **2021**.
3. **KVPY Scholarship:** Selected for KVPY Scholarship, one of the most prestigious scholarships for senior secondary students, by Govt. of India in **2022**.
4. **JEE Advanced 2023:** Secured **All India Rank 3660** in one of the toughest college entrance exams in India, for admission to the prestigious Indian Institutes of Technology (IITs) out of 180,372 candidates. I was offered admission to **IIT Kharagpur** based on my rank.
5. **ISI Entrance 2023:** Secured **All India Rank 5** in the entrance examination for admission to the prestigious **Indian Statistical Institute**.
6. **WBJEE 2023:** Secured a rank of 57 among 125,000 candidates.
7. **Indian Olympiad Qualifier in Mathematics:** Was awarded Certificate of Merit in **2020,2021-22**

## Skills

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1. **Programming:** Python, R
2. **Tools:** Pandas, Numpy, Matplotlib, OpenCV, Keras, PyTorch, TensorFlow,  $\text{\LaTeX}$ , Microsoft Office (Word, Excel, Powerpoint, Access, etc.)

## Experience

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1. **Summer Intern, IIT Ropar**  
**May 2024-July 2024**  
Studied bonds, stocks, options, risk-neutral asset pricing, Binomial Asset Pricing model and Black-Scholes option pricing model under the guidance of **Prof. Puneet Pasricha**. Presented findings in my report.
2. **National Talent Search Camp:**  
**December 2022**  
Attended National Talent Search Camp at Indian Institute of Technology, Kharagpur as a NTSE Scholar .
3. **Research Consultant, WorldQuant**  
**December 2023 - November 2024**  
Generating and backtesting alphas over various markets worldwide.