

# Rhythm GROVER

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## PERSONAL DATA

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## ACADEMIC POSITIONS

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| AUG 2021 - PRESENT  | Assistant Professor<br>Mehta Family School of Data Science and Artificial Intelligence, IIT Guwahati, India.    |
| NOV 2020 - AUG 2021 | Post Doctoral Fellow<br>Theoretical Statistics and Mathematics Unit, Indian Statistical Institute Delhi, India. |
| FEB 2020 - MAY 2020 | Project Scientist<br>Indian Institute of Technology, Kanpur, India.   |

## EDUCATION

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| SEPT 2019 | Doctor of Philosophy in STATISTICS, Indian Institute of Technology, Kanpur, India.<br>ADVISORS: Prof. Debasis KUNDU & Prof. Amit MITRA |
| JULY 2014 | Master of Science in STATISTICS, Indian Institute of Technology, Kanpur, India.  |
| JULY 2012 | Undergraduate Degree in STATISTICS, Sri Venkateswara College, University of Delhi, India.  |

## RESEARCH INTERESTS

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Statistical signal processing  
Non-linear regression  
Statistical Computing

## PUBLICATIONS

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2023

18. [Kundu, D.](#) and Grover, R. Robust Estimators of Two-Dimensional Sinusoidal Model Parameters. To appear in Signal Processing.
17. [Kundu, D.](#), Nandi, S. and Grover, R. On Weighted Least Squares Estimators for Chirp Like Model. To appear in Sankhya A.
16. Mittal, A., Grover, R., [Kundu, D.](#) and [Mitra, A.](#) On Efficient Parameter Estimation of Elementary Chirp Model. IEEE Transactions on Signal Processing, vol. 71, pp. 2352-2365 2023, doi: 10.1109/TSP.2023.3286273.

15. Shukla, A., Grover, R., Kundu, D. and Mitra, A. Computationally Efficient algorithm to estimate the Parameters of a Two-Dimensional Chirp Model with the product term. *Multidimensional Systems and Signal Processing*, pp.1-23.
14. Mittal, A., Grover, R., Kundu, D. and Mitra, A. Estimation of the Elementary Chirp Model Parameters, *IEEE Transactions on Aerospace and Electronic Systems*, doi: 10.1109/TAES.2023.3254527.
13. Shukla, A. Kundu, D. , Mitra, A. and Grover, R. On estimating parameters of a multi-component Chirp Model with equal chirp rates, *IEEE Transactions on Aerospace and Electronic Systems*, doi: 10.1109/TAES.2023.3247974.
12. Kundu, D. , Nandi, S. and Grover, R. On Weighted Least Squares Estimators of Parameters of a Chirp Model. *Circuits, Systems, and Signal Processing*, 42(1), pp.493-521.

## 2022

11. Shukla, A. , Grover, R., Kundu, D. and Mitra, A. Approximate least squares estimators of a two-dimensional chirp model. *Journal of Multivariate Analysis*, 192, p.105045.
10. Nandi, S. , Grover, R. and Kundu, D. Estimation of parameters of two-dimensional random amplitude chirp signal in additive noise. *Multidimensional Systems and Signal Processing*, 33(3), pp.1045-1068.
9. Grover, R., Sharma, A. , Delcourt, T. and Kundu, D. Computationally efficient algorithm for frequency estimation of a two-dimensional sinusoidal model. *Circuits, Systems, and Signal Processing*, 41(1), pp.346-371.

## 2021

8. Grover, R., Kundu, D. and Mitra, A. Asymptotic properties of least squares estimators and sequential least squares estimators of a chirp-like signal model parameters. *Circuits, Systems, and Signal Processing*, 40(11), pp.5421-5465.
7. Grover, R., Kundu, D. and Mitra, A. Estimation of parameters of a harmonic chirp model. *IET Signal Processing*, 15(6), pp.375-395.
6. Kundu, D. and Grover, R. On a chirp-like model and its parameter estimation using periodogram-type estimators. *Journal of Statistical Theory and Practice*, 15, pp.1-26.
5. Nandi, S. , Grover, R. and Kundu, D. Estimation of parameters of multiple chirp signal in presence of additive alpha-stable errors. *Signal Processing*, 189, p.108232.
4. Kundu, D. , Grover, R., and Nandi, S. A review of chirp and some other related signal processing models *Advances in Signal Processing: Reviews*, Vol. 2, Editor: Sergey Y. Yurish, IFSA Publishing, S.L. Barcelona, Spain, pp 149 - 233, 2021, ISBN: 978-84-09-28830-4, 2021.

3. Grover, R., Kundu, D. and Mitra, A. An efficient methodology to estimate the parameters of a two-dimensional chirp signal model. *Multidimensional Systems and Signal Processing*, 32, pp.49-75.

2018

2. Grover, R., Kundu, D. and Mitra, A. On approximate least squares estimators of parameters of one-dimensional chirp signal. *Statistics*, 52(5), pp.1060-1085.
1. Grover, R., Kundu, D. and Mitra, A. Approximate least squares estimators of a two-dimensional chirp model and their asymptotic properties. *Journal of Multivariate Analysis*, 168, pp.211-220.

## PH.D. SUPERVISION

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2022 - Present Avantika Sahu

## TEACHING AND MENTORING EXPERIENCE

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### Indian Institute of Technology Guwahati

JUL. 2023 DA 241 Statistical Foundations for Data Science  
JAN. 2023 DA244 Applied Probability and Random Processes  
JUL. 2022 DA 241 Statistical Foundations for Data Science  
JAN. 2022 DA 546 Introduction to Statistical Learning

### Indian Institute of Technology Kanpur

2019 Graduate Mentor  
Guided two undergraduate students for a project in non-linear regression.

2015-2018 Teaching Assistant  
Courses: Probability and Statistics, Statistical Inference, Non-linear Regression, Time Series Analysis  
Discussed assignments and graded exams.

2016 Tutor  
Probability and Statistics  
Discussed weekly assignments with a class of more than 100 undergraduate students and graded their quizzes and exams.

## TALKS/CONFERENCES/SEMINARS

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- JUN. 2023 Presented on “Stochastic modeling of nearly periodic signals” in the the Probability for the NLP-ML-AI Lecture Series,CFILT, IIT Bombay, Bombay, India.
- APR. 2023 Presented on “Modeling periodic signals: a statistical perspective” in the reading group seminar of Mehta Family School of Data Science and Artificial Intelligence, IIT Guwahati, Guwahati, Assam, India.
- MAR. 2021 Presented on “A novel model and its parameter estimation” in the Theoretical Mathematics and Statistics Unit at Indian Statistical Institute Delhi, Delhi, India.
- SEP. 2018 Presented on “Chirp-like signal model and its parameter estimation” at IEEE international conference on computing, power and communication Technologies, Radisson Blu Hotel, Greater Noida, Uttar Pradesh, India.
- JAN. 2018 Presented on “Two-dimensional chirp signal model” at Open House’18, Department of Mathematics and Statistics, Indian Institute of Technology Kanpur.
- MAR. 2016 Presented on “Parameter estimation of a chirp signal model” at National conference on recent statistical computing techniques and their applications, Ramanujan College, University of Delhi, Delhi, India.
- JAN. 2016 Presented on “Chirp model, its applications and parameter estimation” at Open House’16, Department of Mathematics and Statistics, Indian Institute of Technology Kanpur.

## OUTREACH

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- JUN. 2023 Co-organizer, Summer School for Women in Mathematics and Statistics, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore, India.
- JUN. 2022 Resource Person, Summer School for Women in Mathematics and Statistics, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore, India.

## ADMINISTRATIVE SERVICE

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- JUL. 2023 - PRESENT Member Secretary, School Postgraduate Programme Committee.
- OCT. 2022 - PRESENT Faculty Advisor for B.tech. students.