



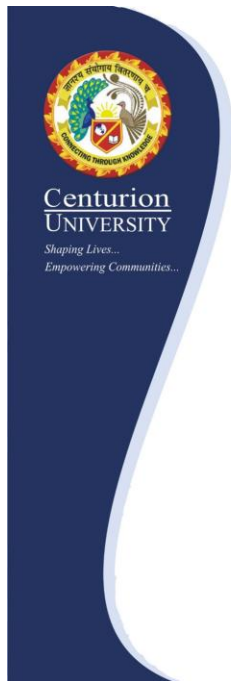
Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...



“A report of a talk on a Mathematical Approach to Remote Sensing”

Name of the event	Seminar on Mathematical Approach to Remote Sensing
Date of the event	27/02/2024
Name of coordinator	Dr. Sujata Chakravarty
No. of attendees	
Mode	Offline



**Centurion University of
Technology and Management,
BBSR Campus**



IEEE Student Chapter

A Mathematical Approach to Remote Sensing



Dr. PSR Srinivasa Sastry
Director (Retd.)

Directorate of Special Projects, DRDO, Hyd.

Contents

- **Introduction**
- **Keynote**
- **Activities and Interaction**
- **Learning Outcomes**
- **Conclusion**



1. Introduction

Remote sensing, a vital tool in modern scientific exploration and resource management, is at the intersection of technology, mathematics, and Earth observation. In a recent talk delving into this dynamic field, a mathematical approach to remote sensing emerged as a focal point, illuminating the intricate relationship between mathematical principles and the extraction of invaluable insights from remote sensing data. Remote sensing, through satellites, aircraft, or other platforms, provides a unique perspective of the Earth's surface and atmosphere, enabling scientists to monitor changes, predict trends, and make informed decisions across various domains, including environmental monitoring, agriculture, urban planning, and disaster management. However, the effective utilization of remote sensing data hinges on sophisticated

mathematical techniques tailored to handle the complexities inherent in the data acquisition process and subsequent analysis.

2. Key Note

Overview of Laplace transforms and Fourier transforms analyze functions in different domains, while eigenvalues and eigenvectors represent key properties of matrices and linear transformations.

3. Activities and Interaction

The design of this talk is for learning and requires activities that allow learners to actively practise doing what knowledgeable. The talk in this session was done by activities like:

- Simple presentation slides
- Exploration of statistical techniques
- Integration of mathematical models
- Questions discussion

4. Learning Outcomes

The talk on "A Mathematical Approach to Remote Sensing" provided valuable insights into the intersection of mathematics and remote sensing technology. Participants gained a deeper understanding of how mathematical principles are applied to analyze and interpret remote sensing data. Here are some major learning outcomes:

1. Understanding of Laplace Transformation:

Gain insight into how Laplace transformation techniques can be applied to analyze signals and images in remote sensing, enabling the extraction of valuable information from complex data sets.

2. Application of Fourier Transformation:

Learn how Fourier transformation methods play a crucial role in remote sensing by decomposing signals into frequency components, facilitating the identification of patterns and features within remote sensing data.

3. Appreciation of Eigenvalues and Eigenvectors:

Explore the significance of eigenvalues and eigenvectors in remote sensing, understanding their role in dimensionality reduction, feature extraction, and the interpretation of spatial and spectral characteristics in imagery analysis.

5. Integration of Mathematical Tools in Remote Sensing:

Develop the ability to integrate mathematical techniques such as Laplace transformation, Fourier transformation, eigenvalues, and eigenvectors into remote sensing workflows for enhanced data interpretation, classification, and modeling purposes.

6. Critical Thinking and Problem-Solving Skills:

Enhance critical thinking skills by applying mathematical concepts to real-world remote sensing problems, fostering the ability to analyze, interpret, and draw conclusions from complex spatial and spectral data sets.

The discussion emphasized the importance of mathematical modeling techniques in enhancing the accuracy and efficiency of remote sensing methods, ultimately contributing to advancements in fields such as environmental monitoring, disaster management, and urban planning.

Conclusion

In conclusion, Dr. PSR Srinivasa Sastry's talk on "A Mathematical Approach to Remote Sensing" provided invaluable insights into the intersection of mathematics and technology in the field of remote sensing. His elucidation of various mathematical techniques such as Fourier transforms, Laplace transforms, and their applications in image processing and data analysis underscored the significance of mathematical rigor in extracting meaningful information from remote sensing data. By emphasizing the importance of understanding the underlying mathematical principles, Dr. Sastry has undoubtedly inspired a deeper appreciation for the role of mathematics in advancing remote sensing technologies, ultimately paving the way for more accurate and insightful observations of our planet from afar. By embracing a mathematical approach, we are equipped with powerful tools to unravel the intricacies of remote sensing data, ultimately enhancing our understanding of the Earth's dynamics and enabling informed decision-making for a sustainable future.

B.Tech (CSE) 6th Sem

- 1) 210301120065 - Poojam Pattnaik
- 2) 210301120031 - Bibek Mohanty
- 3) 210301120057 - Nisam Sekhria
- 4) Abinash Mishra - 210301120117
- 5) Suman Bindhan - 210301120234
- 6) Sunil Sahoo - 210301120205
- 7) Taruni Mohanty - 210301120235
- 8) Sujan Bindhan - 210301120233
- 9) Himansu Sahoo - 210301120212
- 10) Sai Saeeja Khuntia - 210301120007
- 11) Adarsa Suwin - 210301120026
- 12) Swetapadma Das - 210301120032
- 13) Laxmipriya Jena - 210301120176
- 14) Santosh Kumar Sahoo - 210301120006
- 15) Ritesh Behera - 210301120017
- 16) Manas Kumar Mudali - 210301120022
- 17) Aryan Kumar Behera - 210301120011
- 18) P. Gyana Deepika - 210301120250
- 19) Sakata Bhavati Sahoo - 210301120267
- 20) Selina Mishra - 210301120238
- 21) G. Varshit Hari Prasad - 210301120256
- 22) K. Paveen Kumar - 210301120179
- 23) P. Karunakar - 210301120104
- 24) Satyam Swam - 210301121270
- 25) Sweta Biswal - 210301121199
- 26) Swopnil Das - 210301120126
- 27) Preeti Ranjan Sarangi - 210301120123
- 28) Abhinash Pradhan - 210301120114
- 29) Soumendra Priyadarshi - 210301120154
- 30) Arunab Chakra - 210301120155
- 31) Bishwajit Das - 210301120263
- 32) Smriti R. Moharana - 210301120209
- 33) Haridwesh Panda - 210301120169
- 34) Gyana Ranjan Jena - 210301120129
- 35) Anshuman Kari - 210301120150
- 36) Shakti Sai Sahoo - 210301120213
- 37) Amilan Nayak - 210301120227
- 38) Kishu wardhan - 210301120137
- 39) Ayushi Priyadarshan - 210301120206
- 40) Ipsita Priyadarshini - 210301120185
- 41) Anand Mohan Mohanty - 210301120157
- 42) Keshab Chandra Das - 210301120122
- 43) K. Dimesh Reddy - 210301120063
- 44) K. Sai Vasanth - 210301120066
- 45) Abantika Jena - 210301120030
- 46) Jyotirmaye Sahu - 210301120090
- 47) Shrabon K. Rout - 210301120026
- 48) Arankshya P. Shur - 210301120008
- 49) N. Tejaswini - 210301120083
- 50) Sasmita Sahoo - 210301120081
- 51) Mumali Sahoo - 210301120142
- 52) Arpita Mohanty - 210301120101
- 53) ~~Jangala Panda~~ - 210301120136
- 54) ~~Swarna Palukder~~ - 210301120128
- 53) Satya Ranjan Parida - 210301120112
- (54) Subrat Panda - 210301120112
- 55) Omprasad Singh - 210301120112
- 56) Elisara Nayak - 210301120112