# Department of Civil Engineering, Paralakhemundi

Workshop, February – 2023

## **Brief about the Workshop**

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The Department of Civil Engineering and Centre for Data Science & Machine Learning of CUTM organized a workshop entitled "Advancement in trend analysis of time series datasets" on 25/02/2023., from 2.00pm to 5.00pm in Zoom Platform.

### Resource persons/Trainers

1. Dr. Jayanta Das, Assistant Professor at the Department of Geography in Rampurhat College, University of Burdwan, West Bengal, India.

#### **About the Speaker**

His research interest includes agricultural modelling and sustainable management studies, groundwater, flood, drought analysis, climate change, watershed management, hydrological modelling, water quality, geospatial data analysis, data mining, and GIS applications with more than 15 academic years of experience. Dr. Jayanta Das has published more than 30 scholarly articles in peer-reviewed journals, focusing mainly on: climate change, agricultural suitability analysis, natural and man-made hazards analysis, risk management, and spatial data analysis. Recently, Dr. Das has published an edited book entitled Monitoring and Managing Multi-hazards: A Multidisciplinary Approach jointly with Dr. Sudip Kumar Bhattacharya from Springer Nature.

What you get from this Workshop: Practical Coding Session + E-Certificate + Session Recordings

Venue: Online Mode (Zoom Link)

### **Objective and outcome of the Workshop**

The overall workshop session was very much informative and hands on experience. The speaker's way of Hands on demonstration was crystal clear and the participants were engaged in an interactive conversation. The Speaker discussed how time series analysis has been broadly adopted in scientific research and engineering applications. Many theoretical developments and new methods for time series analysis have significantly contributed to the understanding of complex systems. The Speaker also discussed how time series analysis helps organizations understand the underlying causes of trends or systemic patterns over time. Using data visualizations, business users can see seasonal trends and dig deeper into why these trends occur. With modern analytics platforms, these visualizations can go far beyond line graphs. The Speaker showcased a practical way of working with 30 years' time series datasets using software's like R-Studio, Excel and Jupyter Notebook. The participants were overwhelmed the way speaker was engaging everyone's queries with utmost patience and clear description. The Speaker avoided any PPT presentation and totally focused on arranging the datasets and working practically on it with showing how to overcome errors and get the desired output. The Speaker also showcased his publication using these methodologies and motivated participants to work in collaboration. The Speaker discussed the following points:

Comparing parametric and non-parametric methods

Mann Kendal method, Autocorrelation function, Modified mann Kendal, Innovative trend analysis and Rho

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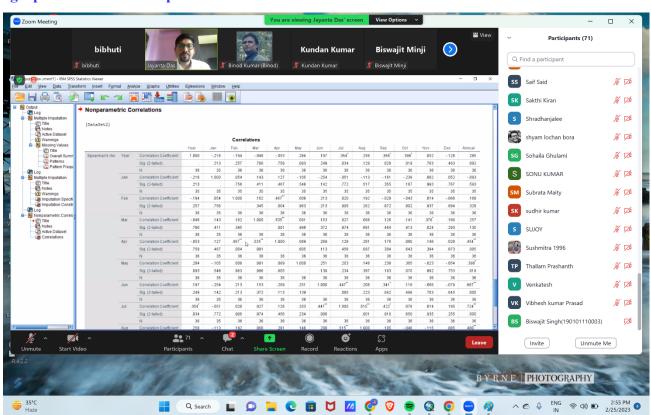
Workshop, February - 2023

**No of Participants:** 70 participants (includes Students and Faculties from our University and outside Universities) joined the online Zoom platform.

## Photographs of the Workshop

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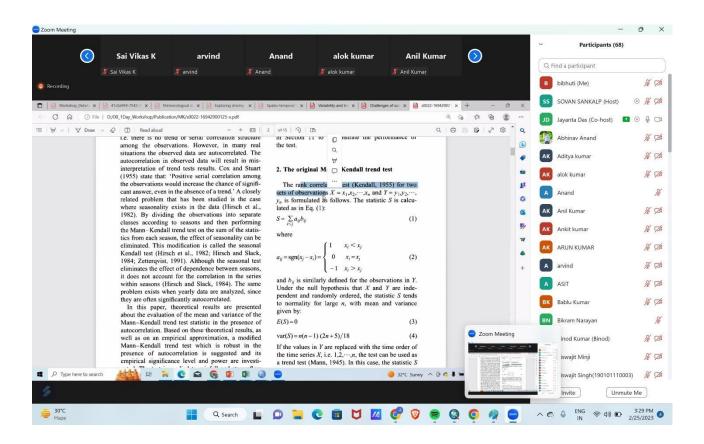
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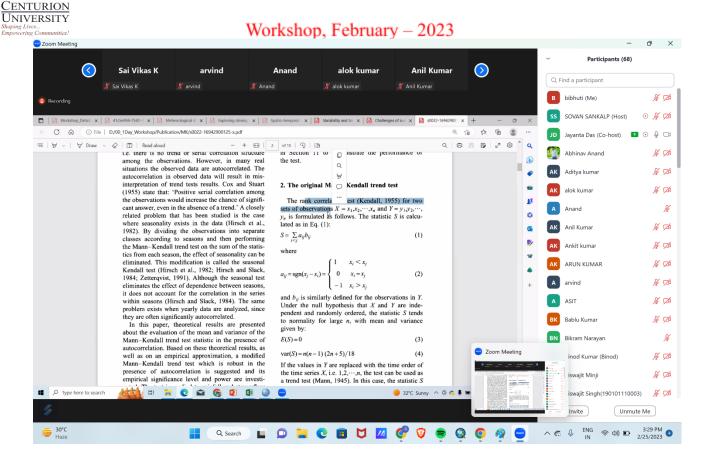
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4	1982	14.213565580	92.072293270	99.873432020	24.225710800	5.230524125	130.68406650	316.0972769	623.7788241	2
5	1982	23.682404170	84.121797910	13.417061310	151.063789700	5.230524125	189.62572100	431.4262289	623.7788241	🔏 bibhuti
6	1983	29.335220470	12.953564450	.000000000	16.658015500	222.008817300	256.73160800	431.4262289 565.3100637	408.0279362	
7	1985	27.101896030	33.291149120	.109863295	6.092264153	8.103277116	158.85632930	450.9012381	494.2088474	
8	1986	12.751007650	27.900125090	4.882050144	8.775327924	3.779986270	417.58687490	624.5830601	443.0339730	
9	1986	23.394009610	1.451396966	22.810366290	34.308251430	7.741931472	11.36227078	357.1243274	243.1360177	
10	1988	.000000000	72.681432190	4.506114442	44.621670590	13.471982150	597.07164620	510.8144369	635.2775956	2
11	1989	.377654774	.058364856	1.126098648	.000000000	276.857147800	486.03593770	631.5104518	868.5223559	Jayanta Das
12	1990	.027465833	62.631504860	112.252802600	65.578080930	179.940596600	595.47788470	606.0058270	572.0134590	6
13	1991	42.644120770	3.429795931	57.933150880	30.327413790	9.254269426	360.46314620	468.0639423	579.8849129	100/20054
14	1992	18.881036490	24.132160190	.092697142	10.917661870	68.608770040	302.75404750	303.2484048	457.9367227	
15	1993	.017166132	.096130354	27.761087400	91.857778880	120.688228300	528.20210090	420.3892851	430.5756894	5
16	1994	23.550205640	49.594699090	.044631965	25.209324650	64.457986510	258.48938180	678.7723631	665.6534342	
17	1995	37.003323950	55.520444210	71.212037180	43.687811710	260.331387200	174.29637240	450.3295966	535.9457233	3 // Binod Kumar (Binod)
18	1996	24.600796650	12.745858280	17.839904320	10.953709370	25.594710040	418.47870110	481.6166342	501.7688589	3
19	1997	16.069223160	3.501892764	11.839485630	36.985307110	24.286638730	289.03310950	626.8353222	777.5057520	4
20	1998	254.117288500	63.010884900	163.432800800	92.163255460	160.285422800	627.47121750	472.3090853	517.1152798	5
21	1999		.000000000	.000000000	.000000000	80.478275770	295.09875690	380.0703082	521.1038964	🦊 Kundan Kumar
22	2000	.281524644	44.031137090	.044631986	13.130380050	22.348599710	455.40217400	374.4939011	512.4255337	4
23	2001	.000000000	5.482009800	38.665866060	17.518895520	33.087724800	580.60600380	628.4865668	608.9636438	3 🔏 Kundan Kumar
24	2002	24.447153930	.000000000	19.535063940	17.045972640	10.291102000	166.80333410	431.3120037	631.1757195	5
25	2003	.880622935	17.543787220	52.916338590	38.919075420	8.651731558	382.63665450	747.4934812	639.6901899	4
26	2004	6.496522790	15.334511180	6.057069451	26.599790260	8.432006861	296.61543640	522.9689859	682.0235759	4
27	2005	20.683482670	2.598951492	30.473320680	26.727663000	15.167146470	153.00864670	559.6126500	262.8564543	Biswajit Minji
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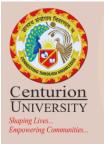
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## **Brochure:**

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University

## A ONE-DAY WORKSHOP ON

# ADVANCEMENT IN TREND ANALYSIS FOR TIME SERIES DATASETS

#### **SPEAKER**



DR. JAYANTA DAS
ASSISTANT PROFESSOR,
RAMPURHAT COLLEGE
WEST BENGAL, INDIA
PUBLICATIONS- 40+
CITATIONS- 300+

## **WORKSHOP LEARNINGS**

COMPARING PARAMETRIC AND
NON-PARAMETRIC METHODS

- 1. **MANN KENDAL METHOD**
- 2. AUTOCORRELATION FUNCTION
- 3. **MODIFIED MANN KENDAL**
- 4. INNOVATIVE TREND ANALYSIS
- 5. **RHO ALGORITHM**





7008038833 (Sovan Sankalp)

## Session Recordings will be provided to participants

COORDINATORS: DR.PRAFULLA KUMAR PANDA, SOVAN SANKALP & DR.BIBHUTI BHUSAN SAHOO ORGANIZED BY:

DEPARTMENT OF CIVIL ENGINEERING & CENTRE FOR DATA SCIENCE AND

MACHINE LEARNING

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, ODISHA,

INDIA

Soven Sent 4. (Workshop Coordinator)

(Workshop Coordinator)