



Sri G.V.G. Visalakshi College For Women, Udumalpet - 642128

Autonomous and Affiliated to Bharathiar University, Coimbatore

Accredited at A+ Grade by NAAC (Fourth cycle)

An ISO 9001:2015 Certified Institution

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SRI G.V.G VISALAKSHI COLLEGE FOR WOMEN

(Autonomous)

Accredited at A⁺ grade by NAAC (4th cycle)

An ISO 9001:2015 Certified Institution Udumalpet-642128



DEPARTMENT OF MATHEMATICS

Organises

An Online Webinar

on

“Geometric Methods in Biomedical Sciences”

Date : 08.02.2022

Time : 10:00 am



Resource Person :

Dr. Selvaraj Muthusamy MBBS., Ph.D.

Assistant Professor of Pathology

Virginia Commonwealth University

USA.

Google Meet Link : <https://meet.google.com/uqy-bonp-gcj>

Mrs. S.Kalaisevi

Head of the Department

Dr. R. Rajeswari

Principal

Organizing Committee

Dr. R. Angel Jay, Associate Professor

Mrs. B. Kalavathi, Associate Professor

Mrs. P. Padmavathi, Assistant Professor

Dr. P. Jayalakshmi, Assistant Professor

Dr. V. Pankajam, Assistant Professor

Dr. A. Kalavathi, Assistant Professor

Dr. R. Baranitha, Assistant Professor

Dr. V. Vijayalakshmi, Assistant Professor

Mrs. R.D. Bewlah, Assistant Professor

Mrs. J.P. Thimpaavai, Assistant Professor

Mrs. S. Deivanayagi, Assistant Professor

Ms. S. Saranya, Assistant Professor

Ms. SP. Abirami, Assistant Professor

Ms. M. Revathi, Assistant Professor

Online International Webinar

02.02.22

Resource Person : Dr. Selvakumar Muthusamy
Assistant Professor in Pathology
Virginia Commonwealth University
USA

Topic : Geometric Methods in Biomedical Sciences

Time : 10:00 am

No. of Beneficiaries : 101

Mode : Google Meet [<https://meet.google.com/099-bonp-gcj>]

The goal of the webinar is to interpret the results of Geometric methods in the field of biomedical sciences.

The webinar witnessed participation from students at UG and PG level and faculty members too from Mathematics and Zoology departments. The webinar started with the prayer song followed by welcome address given by Ms. S. Kalaiselvi, Head and Associate Professor in Mathematics.

The webinar addressed by Dr. Selvakumar Muthusamy gave a clear knowledge about linear algebraic methods, differential geometric methods and topology based methods in biomedical sciences. The projection of Laplacian eigenmaps in spatial gene expression and histological diagnosis is very interesting.

He emphasized the applicability of uniform manifold approximation and projection, the role of persistence homology in the identification of invariant properties regardless of the dimension which was very informative. He also shared the knowledge about the usage of persistent barcodes in the diagnosis of Cancer.

The resource person gave a clear idea about the areas that needs improvement in higher dimensionality Euclidean space. The program ended with the vote of thanks by Dr. P. Jayalakshmi, Assistant Professor in Mathematics.

S. Kalaiselva
Head of the department

~~Principals~~
Principal
SRIGANDHARAKSHETRAM
FOR WOMEN (AUTONOMOUS)
VENKATESHWAR HILLS POST,
UDUMALPET - 641 120

Screenshots:

The slide displays a 3D cube with a smaller yellow cube inside, labeled 'Unit Cube' and 'Subcube'. To the right is a line graph with 'Distance' on the y-axis (0.0 to 1.0) and 'Fraction of Volume' on the x-axis (0.0 to 0.6). Three curves are shown for $p=1$, $p=2$, and $p=10$. The $p=1$ curve is the highest, followed by $p=2$, and then $p=10$. Below the graph, the text reads: 'The Elements of Statistical Learning (2nd edition) Hastie, Tibshirani and Friedman (2009). Springer-Verlag'.

10:23 AM | uqy-bonp-gcj

The slide lists three methods for dimensionality reduction:

1. Linear algebraic methods – Singular value decomposition, matrix factorization etc.,
2. Differential geometry based methods – Laplacian eigenmaps, UMAP etc.,
3. Topology based methods – Using persistent homology

A notification at the bottom left states: 'Pankajam Gurusamy can now join this meeting'.

10:28 AM | uqy-bonp-gcj