

**SPEAKER**



## **Prof. Subrahmanian Moosath K.S.**

Senior Professor, IIST Trivandrum

He completed his M.Sc From University of Kerala and earned his M.Phil and Ph.D degree from University of Hyderabad, Hyderabad.

### **Title of the talk**

Information Geometry

### **Abstract**

“Information geometry is a method of exploring the world of information by means of modern geometry.”

- Shun-ichi Amari

Information geometry is of recent origin started around 1985 and it is the result of applying non-Euclidean geometry to the probability theory in general and statistical inference in particular. This is very effective in applications to machine learning, signal processing, neural networks, optimization etc. In this talk, first we introduce the basic ideas like statistical manifold, tangent space, Fisher information metric, divergences etc. Then, the statistical manifold structure is given to the space of Gaussian Mixture Models which enables to use the divergences for the similarity measure. Similarity between Gaussian Mixture Models plays a crucial role in many classification problems in the areas of machine learning and pattern recognition. The Modified Symmetric Kullback-Leibler Divergence is defined and used for the similarity measure. This method of comparing the point clouds takes care of the geometry of the objects represented by the point clouds. The experimental results on comparison of (i) basic geometric shapes, (ii) three dimensional human body shapes within a comprehensive human body shape dataset and (iii) animal shapes indicate that the proposed method achieves superior performance compared with the state-of-the-art methods and valuable insights are derived from the results. The talk will end with a brief note on the future work in this direction.



## **GOLDEN JUBILEE DISTINGUISHED ALUMNI LECTURE SERIES 2025**

### **SCHOOL OF MATHEMATICS AND STATISTICS**

#### **Chair: Prof. Saroj Panigrahi**

Dean, School of Mathematics and Statistics  
University of Hyderabad

#### **Date & Time:**

**21 Feb, 2025 | 03:00 PM**

#### **Venue:**

**Central Seminar Hall (East Campus)**

#### **Coordinator : Dr. M.S.Datt**

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