UNIVERSITY ⚜ OF MYSORE
Department of Studies in Statistics
(Commemorating 75 years of teaching M.Sc. Statistics course)
Manasagangotri, Mysuru 570006, India

Dr. S. Ravi,   September 06, 2019
Professor and Chairman

Visit of Dr. Bharath Karthik to the Department

The faculty and students of the Department sincerely thank the University for inviting Dr. Bharath Karthik, School of Mathematical Sciences, University of Nottingham, UK, under the International Faculty Visiting Program of the University. Dr. Karthik will be visiting the Department from September 09, 2019 till September 20, 2019 and will deliver 10 lectures, two each starting at 12.15PM and 3.15PM at the Seminar Hall of the Department on September 16, 17, 18, 19, 20, 2019 on the following topics.

Geometric and invariant aspects of shape data

16.09.2019   12.15 – 13.15 - Invariance and symmetry in complex data with examples.
- Need for group theory, and a brief outline of challenges in carrying out invariant statistical analysis.
15.15 – 16.15 - Basics group theory: orbits, quotient spaces, cosets, cross section, maximal invariants. Transformation groups lurking in classical problems: SVD, PCA, Correlation coefficient, Wishart distribution, eigenvalues of PD matrices.

17.09.2019   12.15 – 13.15 Shape data with landmarks: representation, invariances, cross sections, perturbation models, maximal invariants with numerical examples.
15.15 – 16. 15 Functional data with phase variation: group of warping functions, quotient space, maximal invariants with numerical examples.

18.09.2019   12.15 – 13.15 - Shapes of 2D parametric curves: representation, invariances, quotient space. Elementary differential geometry: tangent space, exponential map, log map.
15.15 – 16. 15 Using geometric ideas: shape alignment, Frechet mean (existence and uniqueness) with examples for landmark and curve shapes. - Problems with L2 metric for alignment of functions under warping.

19.09.2019   12.15 – 13.15 Stochastic alignment of functions and curves with distribution on warping functions.
15.15 – 16. 15 PCA on shape space: examples for landmarks, functions and curves. PC regression with shape predictors

20.09.2019   12.15 – 13.15 Challenges in defining probability models on shape spaces. Tangent space models.
15.15 – 16. 15 TBD