ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS
ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ & ΤΕΧΝΟΛΟΓΙΑΣ ΤΗΣ ΠΛΗΡΟΦΟΡΙΑΣ
SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY
ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΗΣ
DEPARTMENT OF STATISTICS

ΚΥΚΛΟΣ ΣΕΜΙΝΑΡΙΩΝ ΣΤΑΤΙΣΤΙΚΗΣ ΙΟΥΛΙΟΣ 2018

Μιχάλης Τσαγρής

Postdoctoral researcher in Bioinformatics, Department of Computer Science, University of Crete, Greece

The elliptically symmetric angular Gaussian distribution for modeling spherical data

ΠΑΡΑΣΚΕΥΗ 6/7/2018
13:00 – 15:00

ΑΙΘΟΥΣΑ Τ103, 1ος ΟΡΟΦΟΣ,
ΝΕΟ ΚΤΙΡΙΟ ΟΠΑ
(ΤΡΟΙΑΣ 2)

ΠΕΡΙΛΗΨΗ

Directional data arise in many fields including biology, ecology gelogy, geophysics, criminology, medicine. When dealing with spherical data, the angular Gaussian (AG) distribution on the sphere S^{d-1} is analogous to the Fisher-Bingham (FB) distribution on S^{d-1}. The Kent distribution is an important subfamily of the general FB distribution which has elliptical contours. In this talk I will present an analogous subfamily of the general AG distribution, called elliptically symmetric angular Gaussian (ESAG) distribution. The ESAG distribution is particularly easy to simulate and has a density that is quick to evaluate exactly. I also discuss the use of ESAG for regression modelling on the sphere. The numerous advantages it offers include spherical-spherical regression and general spherical regression without assuming rotational symmetry (the analogue of independence in the bivariate normal in R^2).

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AUEB STATISTICS SEMINAR SERIES JULY 2018

Mihalis Tsagris
Postdoctoral researcher in Bioinformatics, Department of Computer Science, University of Crete, Greece

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FRIDAY 6/7/2018
13:00 – 15:00

ROOM T103, 1ST FLOOR,
NEW AUEB BUILDING
(2 TROIAS STR.)

ABSTRACT

Directional data arise in many fields including biology, ecology gelogy, geophysics, criminology, medicine. When dealing with spherical data, the angular Gaussian (AG) distribution on the sphere S^{d-1} is analogous to the Fisher-Bingham (FB) distribution on S^{d-1}. The Kent distribution is an important subfamily of the general FB distribution which has elliptical contours. In this talk I will present an analogous subfamily of the general AG distribution, called elliptically symmetric angular Gaussian (ESAG) distribution. The ESAG distribution is particularly easy to simulate and has a density that is quick to evaluate exactly. I also discuss the use of ESAG for regression modelling on the sphere. The numerous advantages it offers include spherical-spherical regression and general spherical regression without assuming rotational symmetry (the analogue of independence in the bivariate normal in R^2).