

BREV
Ukonvolutteret



MEDDELELSER

Dansk Selskab for Teoretisk Statistik

Seminarer

Seminar, Biostatistisk Afdeling, KU, side 3

Seminar, Department of Mathematical Sciences, University of Aarhus, side 4-5

Stillinger

Post doctoral positions in statistics University of Copenhagen, side 6



Returneres ved varig adresse meddelelser@statistik.dtu.dk

Næste nummer af "MEDDELELSER" udkommer 6. september 2010.
Bidrag skal være redaktøren i hænde senest den 27. august kl. 12.00.

Dansk Selskab for Teoretisk Statistik Bestyrelse 2010	
Formand	fmd@dsts.dk
Søren Feodor Nielsen Institut for Finansiering, Center for Statistik CBS Tlf. 38153515	
Næstformand	nfmd@dsts.dk
Anders Tolver Jensen Institut for Grundvidenskab og Miljø/Statistics LIFE, Københavns Universitet Tlf. 35332337	
Kasserer	kass@dsts.dk
Malene Højbjerg Novo Nordisk A/S Tlf. 30 79 62 09	
Sekretær	sekr@dsts.dk
Esben Agerbo National Centre for Register-based Research Faculty of Social Sciences University of Aarhus Tlf. 89 42 68 15	
Webmaster	webs@dsts.dk
Klaus Kaae Andersen Informatics and Mathematical Modelling, Section for Statistics, DTU Tlf. 45 25 34 19	
Redaktør	red@dsts.dk
Charlotte Hindsberger Novo Nordisk Tlf. 30 79 65 92	

Meddelelser er medlemsblad for
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Udgivelsesplan for Meddelelser 2010

Nr.	Bidrag senest	Udkommer
1	22. januar kl. 12	1. februar
2	26. marts kl. 12	12. april
3	23. april kl. 12	3. maj
4	28. maj kl. 12	7. juni
5	27. august kl. 12	6. september
6	24. september kl. 12	4. oktober
7	22. oktober kl. 12	1. november
8	26. november kl. 12	6. december

Seminar i anvendt statistik

Seminarret afholdes på det gamle Kommunehospital, Øster Farimagsgade 5. Der serveres te i
Biostatistisk Afdelings bibliotek (opgang B, lokale 10.2.15) en halv time før.

Mandag d. 7. juni 2010, kl. 15.15, lokale 1.0.10

Vladimir Canudas-Romo

Department of Population, Family and Reproductive Health,
Johns Hopkins University, Baltimore

and

Department of Biostatistics,
University of Copenhagen

MEASURES OF LONGEVITY: TIME TRENDS AND RECORD VALUES

This article examines the trend over time in the measures of “typical” longevity experienced by members of a population: life expectancy at birth and modal age at death. The article also analyzes trends in record values observed for both measures. The record life expectancy at birth increased from a level of 44 years in Sweden in 1840 to 82 years in Japan in 2005. However, the record modal age at death changes very little until the second half of the twentieth century: it moved from a plateau level, around age 80, to having a similar pace of increase as that observed for the mean in most recent years. These findings explain the previously observed uninterrupted increase in the record life expectancy. The cause of this increase has changed over time from a dominance of child mortality reductions to a dominance of adult mortality reductions, which became evident by studying trends in the record modal age at death.

Esben Budtz-Jørgensen

Centre for Stochastic Geometry and Advanced Bioimaging¹

Department of Mathematical Sciences, University of Aarhus

Seminars:

Friday 11 June 2010, 11:15-12:00, building no. 1532, in Koll. G

Richard Gardner (Western Washington University):

Intersections of convex bodies

Abstract:

The Brunn-Minkowski theory is the core of analytic convex geometry, and for over a century it has provided the tools for understanding many fundamental issues concerning the metrical properties (such as volume, surface area, mean width, etc.) of convex bodies. It is particularly successful when dealing with Minkowski (vector) sums of convex bodies or their orthogonal projections onto subspaces, but it does not seem so generally applicable to intersections of convex bodies.

Several natural functions involving intersections of convex bodies can be defined, and some have been studied before. After an introductory discussion of these and some applications, we focus on two such functions: The function $\alpha_K(L, \rho)$ that gives the volume of the intersection of one convex body K in \mathbb{R}^n and a dilate ρL of another convex body L in \mathbb{R}^n , and the function $\beta_K(L, \rho)$ that gives the $(n-1)$ -dimensional Hausdorff measure of the intersection of K and the boundary $\partial(\rho L)$ of ρL . The main interest is in the concavity properties of $\alpha_K(L, \rho)$, particularly when K and L are symmetric with respect to the origin. The Brunn-Minkowski inequality can be applied, but does not always yield the best results, which exhibit an interesting change between low and higher dimensions.

The new results discussed in the talk were obtained jointly with Stefano Campi and Paolo Gronchi of the University of Florence.

Thursday 17 June 2010, 14:15-15:00, building no. 1531, in Koll. D

Jan Rataj (Charles University, Praha):

Surface area and curvatures by approximation with parallel set

Abstract:

Curvature measures for nonsmooth sets in a Euclidean space are approximated by parallel neighbourhoods. As particular examples, sets from the convex ring, Lipschitz manifolds, as well as irregular sets as fractals and Brownian paths will be mentioned.

Thursday 24 June 2010, 14:15-15:00, building no. 1531, room D01

Richard Gardner (Western Washington University):

Reconstruction from covariograms and the phase retrieval problem

Abstract:

The Phase Retrieval Problem of Fourier analysis involves determining a function f on \mathbb{R}^n from the modulus $|f|$ of its Fourier transform \hat{f} . The problem arises frequently and naturally in various areas of science, such as X-ray crystallography, electron microscopy, optics, and astronomy, in which only the magnitude of the Fourier transform can be measured and the phase is lost. It is a fundamentally under-determined problem without additional constraints.

One such constraint is that the function f is the characteristic function 1_K of a convex body K in \mathbb{R}^n . In this setting one would like to construct an approximation to 1_K (or, equivalently, to K) from a finite number of noisy measurements of $|\hat{1}_K|$.

In this talk, I will explain how this can be done, giving in outline a complete theoretical solution to the problem. The main idea is to utilize a connection to a closely related problem, that of retrieving a convex body from a finite number of noisy measurements of its covariogram. The covariogram g_K of a convex body gives the volumes of the intersections of K with its translates, i.e.,

$$g_K(x) = V(K \cap (K+x)), \text{ for } x \in \mathbb{R}^n.$$

The work was done jointly with Gabriele Bianchi (Florence, Italy) and Markus Kiderlen (Aarhus, Denmark). If time allows, some demonstrations of computer programs written by Western undergraduate students funded by the NSF.

**Post doctoral positions in statistics
University of Copenhagen**

Applications are invited for 1-3 post doctoral positions in statistics at the University of Copenhagen. Dependent on the projects of the applicants, the positions will be at the Department of Mathematical Sciences (the Faculty of Science), the Department of Biostatistics (the Faculty of Health Sciences), or the Department of Basic Sciences and Environment (the Faculty of Life Sciences). The positions are for **up to 2 years** and are open for **appointment as soon as possible**. Duties include research and teaching.

The post doctoral positions are part of the University of Copenhagen Statistics Network based on a grant from the Excellence Programme of the University of Copenhagen. The general topic of the network research is statistical methods for complex and high dimensional models, with focus on six particular areas: statistical aspects of bioinformatics and gene regulation, survival analysis, dynamical stochastic models, image analysis, functional data analysis and statistical computing.

The positions require a Ph.D. degree or similar qualifications. It is required that the candidates have a research project within one of the six areas listed above that can be integrated with that of one or more of the permanent scientific staff associated with the network. For more information on the research in the network, see the <http://statistics.ku.dk/>

The terms of employment and salary are subject to the agreement between the Danish Ministry of Finance and the Danish Confederation of Professional Associations on the employment of academics in state service.

Applications must be in English and emailed as a single pdf file to michael@math.ku.dk (subject line: "post doctoral position and last name of applicant"). The applications should include (in the following order):

- Curriculum vitae
- an outline (2 pages) of the planned research
- a short description of previous research (1 page)
- full contact details (Name, address, telephone & email) of 2 persons who can provide letters of reference
- a list of publications
- pdf versions of max. 5 papers (included in the application file)

Enquiries about the position can be made to professor Michael Sørensen, Department of Mathematical Sciences (tel: +45 3532 0680, email: michael@math.ku.dk).

The university welcomes applications from qualified candidates regardless of age, gender, race, religion or ethnicity.

The closing date for applications is **15 June 2010 at 12:00 (noon)**. Applications received thereafter will not be considered.

Kalender 2010

Dato	No.	Aktivitet
7. juni	4	Seminar i anvendt statistik, Biostatistisk Afdeling, KU. <i>MEASURES OF LONGEVITY: TIME TRENDS AND RECORD VALUES</i>
11. juni	4	Seminar, Department of Mathematical Sciences, University of Aarhus. <i>Intersections of convex bodies</i>
17. juni	4	Seminar, Department of Mathematical Sciences, University of Aarhus. <i>Surface area and curvatures by approximation with parallel set</i>
24. juni	4	Seminar, Department of Mathematical Sciences, University of Aarhus. <i>Reconstruction from covariograms and the phase retrieval problem</i>
9-10. nov.	2	Todagesmøde, Biostatistisk Afdeling, Københavns Universitet