Volume 24, Number 04 IPNet Digest April 01, 2017 Today's Editor: Patricia (Patti) K. Lamm, Michigan State University Today's Topics: Workshop: New Mathematical Methods in Computational Imaging (Edinburgh) Workshop: Inverse Problems and Data Science (Edinburgh) Short Course: Bayesian Inverse Problems (Edinburgh) Summer School: Adv. Numerical Techniques for Inverse Problems (Sardinia) University Assistantship: Mathematical Image Processing and Inverse Problems PhD Studentship: Multimodality Image Registration Techniques and Analysis Table of Contents: Inverse Problems Table of Contents: Inverse Problems in Science and Engineering Table of Contents: Inverse Problems and Imaging Table of Contents: Journal of Inverse and Ill-posed Problems Submissions for IPNet Digest: Mail to ipnet-digest@math.msu.edu Information about IPNet: http://ipnet.math.msu.edu _____ From: "Pereyra, Marcelo" <m.pereyra@hw.ac.uk> Subject: Workshop - "New mathematical methods in computational imaging", June 29, Edinburgh Date: March 28, 2017 Dear colleagues, It is my pleasure to invite you to the Heriot-Watt workshop on "New mathematical methods in computational imaging", which will be held on the 29th of June 2017 in Edinburgh. The aim of this meeting is to gather imaging experts from the Bayesian statistics, applied analysis and signal processing communities to discuss recent breakthroughs in mathematical methodology for inverse problems related to computational imaging. The goals are to provide an opportunity to disseminate new results and to promote synergy and cross-fertilisation between these fields.

Workshop programme 09.50 - 10.00: Welcome 10.00 - 10.45: Mike Davies Coffee break (30 minutes) 11.15 - 12.00: Marcelo Pereyra Lunch & Invited Poster Session (Abderrahim Halimi, Audrey Repetti, and Xiaohao Cai) 13.30 - 14.15: Joao Mota 14.15 - 15.00: Yoann Altmann Coffee break & Poster session 16.00 - 16.45: TBC

The workshop is organised by Marcelo Pereyra (Heriot-Watt). For more information, to propose a poster presentation, and to register, please visit the workshop website at http://www.macs.hw.ac.uk/~mp71/LMS_workshop_June2017.html

The meeting is supported by the London Mathematical Society and by Heriot-Watt University.

From: "Betcke, Marta" <m.betcke@ucl.ac.uk> Subject: Turing/LMS workshop on Inverse Problems and Data Science 8-10 May 2017, Edinburgh, UK Date: March 23, 2017

Dear All,

we would like to bring to your attention workshop on Inverse Problems and Data Science, 8-10 May 2017 in Edinburgh, sponsored by the Alan Turing Institute, London Mathematical Society and Schlumberger, and supported by the School of Mathematics at the University of Edinburgh.

The aim of the workshop is to bring together researchers on inverse problems working in different areas of mathematics, statistics and machine learning as well as from the applied disciplines where inverse problems arise, such as astronomy, biology, computer vision, geoscience and medicine. The topics of the workshop include nonlinear inverse problems, algorithms, inverse problems in machine learning, theoretical properties of statistical estimators in inverse problems, Bayesian inverse problems, applications in science and medicine.

Registration and poster submission is open; the deadline for submission of poster abstracts is 7 April, and the registration deadline is 30 April. There is a registration fee £60 to cover catering. Limited number of travel bursaries are available for UK-based PhD students presenting a poster.

For further details please refer to the workshop's website http://www.maths.ed.ac.uk/~nbochkin/LMSTuring_inverseproblems_workshop.htm

The workshop will be followed by one day LMS short course on Bayesian inverse problems on the 11th of May, see separate advert or the course website http://www.maths.manchester.ac.uk/~sholman/LMSworkshops/Bayes_course

Organisers: Natalia Bochkina (University of Edinburgh) Marta Betcke (UCL) Sean Holman (University of Manchester) Carola Schoenlieb (University of Cambridge) From: "Betcke, Marta" <m.betcke@ucl.ac.uk> Subject: LMS short course on Bayesian Inverse Problems, 11th May, 2017, University of Edinburgh Date: March 23, 2017 Dear All, LMS short course "Introduction to the Bayesian approach to inverse problems" will be held on 11th of May, 2017 at the University of Edinburgh. Particular topics include: - Bayes' theorem in finite and infinite dimensional parameter spaces - well-posedness - statistical estimates - connections to classical regularisation methods - algorithms for the efficient approximation of the solution of the Bayes inverse problem: Monte Carlo, multilevel Monte Carlo and Markov-chain Monte Carlo. The course will be given by Dr Aretha Teckentrup (University of Edinburgh and the Alan Turing Institute) and Dr Claudia Schillings (Mannheim, Germany). Registration is free, registration deadline is 4th of May 2017. For details please refer to the course website: http://www.maths.manchester.ac.uk/~sholman/LMSworkshops/Bayes_course This course directly follows a related ATI/LMS workshop on Inverse Problems and Data Science, 8-10 May, 2017, Edinburgh http://www.maths.ed.ac.uk/~nbochkin/LMSTuring inverseproblems workshop.htm Organisers: Natalia Bochkina (University of Edinburgh) Marta Betcke (UCL) Sean Holman (University of Manchester) From: Giuseppe Rodriguez <rodriguez@unica.it> Subject: Summer School on Inverse Problems in Sardinia, July 2017 Date: March 16, 2017 Summer School "Advanced Numerical Techniques for Inverse Problems, with Applications in Imaging Science and Applied Geophysics" Cagliari (Sardinia, Italy) July 17-21, 2017.

The last 20 years has seen significant development in methods for analyzing and solving inverse ill-posed problems. Many of these

methods can be expressed with the tools of Numerical Linear Algebra. Six courses will provide an overview of many of established and new techniques for the analysis and solution of inverse ill-posed problems. The theory presented is illustrated with computed examples. Participants in the summer school will be assigned homework that expands the theory that is presented in lectures, and programming exercises that will show how the methods discussed perform.

Application:

Participation is open to Ph.D students and young researchers. Prerequisites for participants of the summer school include basic knowledge of Linear Algebra and MATLAB programming. The number of participants in the summer school is limited. Applications can be submitted by e-mail to the address antip17@bugs.unica.it March 15 -April 20, 2017, and should include an application letter by the applicant, a CV of the applicant, and a letter of recommendation describing the background of the applicant. This letter should be sent by the letter writer. Applicants will be notified of acceptance by April 30. Participation in the summer school is free.

Complete information on the summer school is available at the web site http://bugs.unica.it/cana/antip17/ The event is sponsored by Sardegna Ricerche (www.sardegnaricerche.it) and the University of Cagliari (www.unica.it).

From: "Moser, Melanie (melanie.moser@uni-graz.at)" <melanie.moser@uni-graz.at>
Subject: University Assistant with doctorate, Graz, Austria
Date: March 15, 2017

The Institute of Mathematics and Scientific Computing at the University of Graz is looking for an University Assistant with doctorate

(http://jobs.uni-graz.at/en/MB/69/99/3394)
(40 hours a week; fixed-term employment for the period of 6 years; position to be
filled as of now)

Job specification

• Research in the field of applied mathematics with emphasis on the analysis and the numerics of problems in mathematical image processing and inverse problems

• Collaboration in interdisciplinary cooperation projects and third-party funded projects

• Independent teaching of courses in the field of applied mathematics, supervision of students and holding of exams

• Participation in organizational and administrative matters

Professional qualifications

• Doctoral degree in a mathematical branch of study

• Solid knowledge of mathematical methods in image processing, inverse problems and numercial mathematics

• Knowledge of functional analysis, geometric measure theory, continuous mathematical optimization and its efficient algorithmic realization (desirable)

Personal profile

• Ability for integration into the institute's research profile and in particular into interdisciplinary cooperation projects

- Capacity for teamwork, organizational talent and ability to communicate
- Ability to teach in german language

Classification Salary scheme of the Universitäten-KV (University Collective Agreement): B1

Minimum salary

The minimum salary as stated in the collective agreement and according to the classification scheme is EUR 3626.60 gross/month. This minimum salary may be higher due to previous employment periods eligible for inclusion and other earnings and remunerations.

We offer you a job with a lot of responsibility and variety. You can expect an enjoyable work climate, flexible work hours and numerous possibilities for further education and personal development. Take advantage of the chance to enter into a challenging work environment full of team spirit and enthusiasm for your job.

Application Deadline: April 5th 2017 Reference Number: MB/69/99 ex 2016/17

The University of Graz strives to increase the proportion of women in particular in management and faculty positions and therefore encourages qualified women to apply. Especially with regard to academic staff, we welcome applications from persons with disabilities who meet the requirements of the advertised position.

If you are interested, please submit your application documents within the stated deadline to: bewerbung@uni-graz.at Karl-Franzens-Universität Graz Personalressort Universitätsplatz 3 8010 Graz

From: Tuomo Valkonen <tuomov@iki.fi> Subject: PhD studentship: Multimodality image registration techniques and analysis (University of Liverpool) Date: March 22, 2017

The Department of Mathematical Sciences and the EPSRC Liverpool Centre of Maths in Healthcare at the University of Liverpool invites applications for this graduate teaching assistant (GTA) studentship leading to a PhD and starting from 1st September 2017.

The project will develop mathematical models for multimodal imaging: the combination of different modalities, such as CT, MRI, photoacoustic, optical, ultrasound, and Tera-Hertz imaging. Our goal is robustness, which will be achieved through rigorous mathematical analysis. The models combined with relevant numerical solution techniques will be applied to various applications, such as oncology and functional brain imaging, relevant to the EPSRC Liverpool Centre of Maths in Healthcare and its clinical and industrial partners. Any single modality of images (e.g. CT) cannot reveal all the features in an object and different modalities may offer advances in practical applications by complementing each other through suitable combination of information.

https://www.liverpool.ac.uk/mathematical-sciences/postgraduate/postgraduateopportunities-in-mathematics/lcmh-phd-studentship-3/

From: <noreply@iopscience.org> Subject: Inverse Problems, Volume 33, Number 4, April 2017 Date: March 1, 2017

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Superiorization: theory and applications Yair Censor, Gabor T Herman, and Ming Jiang

Special Issue Papers

A new convergence analysis and perturbation resilience of some accelerated proximal forward-backward algorithms with errors Daniel Reem, and Alvaro De Pierro

A unified treatment of some perturbed fixed point iterative methods with an infinite pool of operators Touraj Nikazad, and Mokhtar Abbasi

Nonexpansiveness of a linearized augmented Lagrangian operator for hierarchical convex optimization Masao Yamagishi, and Isao Yamada

Asymptotic behavior of two algorithms for solving common fixed point problems Alexander J Zaslavski

Convergence to approximate solutions and perturbation resilience of iterative algorithms Simeon Reich, and Alexander J Zaslavski

Can linear superiorization be useful for linear optimization problems?

Yair Censor

Perturbation resilience and superiorization methodology of averaged mappings Hongjin He, and Hong-Kun Xu

Bounded perturbation resilience and superiorization techniques for the projected scaled gradient method Hong-Kun Xu

Superiorization with level control Andrzej Cegielski, and Fadhel Al-Musallam

Superiorization of incremental optimization algorithms for statistical tomographic image reconstruction E S Helou, M V W Zibetti, and E X Miqueles

Computerized tomography with total variation and with shearlets Edgar Garduño, and Gabor T Herman

Speedup of lexicographic optimization by superiorization and its applications to cancer radiotherapy treatment Esther Bonacker, Aviv Gibali, Karl-Heinz Küfer, and Philipp Süss

Total variation superiorization in dual-energy CT reconstruction for proton therapy treatment planning Jiahua Zhu, and Scott Penfold

Superiorization-based multi-energy CT image reconstruction Q Yang, W Cong, and G Wang

http://iopscience.iop.org/issue/0266-5611/33/4

From: "Davies, Rosalind" <Rosalind.Davies@tandf.co.uk> Subject: Inverse Problems in Science and Engineering, Volume 25, Issues 5-6

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An improved steady inverse method for turbomachinery aerodynamic design J. Yang, Y. Liu, X. Wang & H. Wu

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Multi-level backcalculation algorithm for robust determination of pavement layers parameters

Tomasz Garbowski & Andrzej Pożarycki

Precise identification of moving vehicular parameters based on improved glowworm swarm optimization algorithm H. L. Li, Z. R. Lu, J. K. Liu & M. Huang

Robust inversion methods for aerosol spectroscopy Tobias Kyrion & Graham Alldredge

Recovery of a time-dependent heat source in one-dimensional thermoelasticity of type-III K. Van Bockstal & M. Slodička

The spherical tensor approach to 3D tensor field tomography A. L. Balandin

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The regularized trace of Sturm-Liouville problem with discontinuities at two points Fatma Hıra

Current reconstruction from magnetic field using spherical harmonic expansion to reduce impact of disturbance fields F. Ghasemifard, M. Johansson & M. Norgren

Deterministic versus stochastic level-set regularization in nonlinear phase contrast tomography Bruno Sixou

An inverse-source problem for maximization of pore-fluid oscillation within poroelastic formations C. Jeong & L. F. Kallivokas

Reconstructing design parameters of a rectangular resonator via peak signal-to-noise ratio and global optimization algorithms Ivan Amaya & Rodrigo Correa

Application of artificial bee colony algorithm for inverse modelling of a solar collector Ranjan Das, Bahriye Akay, Rohit K. Singla & Kuljeet Singh

Structural damage identification via time domain response and Markov Chain Monte Carlo method Josiele S. Teixeira, Leonardo T. Stutz, Diego C. Knupp & Antônio J. Silva Neto Announcement The Ninth International Conference "Inverse Problems: Modeling & Simulation" http://www.tandfonline.com/toc/gipe20/25/6 From: Cuixin.zhou <newsletter-noreply@aimsciences.org> Subject: Contents, IPI vol. 11, no. 2 April 2017 Date: March 22, 2017 Inverse Problems and Imaging April 2017 Volume 11, Number 2 Table of Contents Convergence of Tikhonov regularization for solving ill--posed operator equations with solutions defined on surfaces Guozhi Dong, Bert Jüttler, Otmar Scherzer and Thomas Takacs A two-step mixed inpainting method with curvature-based anisotropy and spatial adaptivity Francisco J. Ibarrola and Ruben D. Spies A phaseless inverse scattering problem for the 3-D Helmholtz equation Michael V. Klibanov Applications of CGO solutions to coupled-physics inverse problems Ilker Kocyigit, Ru-Yu Lai, Lingyun Qiu, Yang Yang and Ting Zhou Optical flow on evolving sphere-like surfaces Lukas F. Lang and Otmar Scherzer Stability in conductivity imaging from partial measurements of one interior current Carlos Montalto and Alexandru Tamasan Localization of the interior transmission eigenvalues for a ball Vesselin Petkov and Georgi Vodev Multiwave tomography with reflectors: Landweber's iteration Plamen Stefanov and Yang Yang Some novel linear regularization methods for a deblurring problem Xiangtuan Xiong, Jinmei Li and Jin Wen http://aimsciences.org/journals/contentsListnew.jsp?pubID=942 From: <noreply@degruyter.com>

Subject: Contents 'Journal of Inverse and Ill-posed Problems'

Date: March 30, 2017 Journal of Inverse and Ill-posed Problems April 2017 Volume 25, Issue 2 Table of Contents A functional Hodrick-Prescott filter Djehiche, Boualem / Nassar, Hiba On the peakon inverse problem for the Degasperis-Procesi equation Mohajer, Keivan Recovery of harmonic functions from partial boundary data respecting internal pointwise values Leblond, Juliette / Ponomarev, Dmitry Inverse spectral problems of transmission eigenvalue problem for anisotropic media with spherical symmetry assumptions Xu, Xiao-Chuan / Yang, Chuan-Fu / Buterin, Sergey A. An inverse problem for a nonlinear diffusion equation with time-fractional derivative Tatar, Salih / Ulusoy, Süleyman Imaging of complex-valued tensors for two-dimensional Maxwell's equations Guo, Chenxi / Bal, Guillaume Direct and inverse source problems for a space fractional advection dispersion equation Aldoghaither, Abeer / Laleg-Kirati, Taous-Meriem / Liu, Da-Yan A conditional Lipschitz stability for determining a space-dependent source coefficient in the 2D/3D advection-dispersion equation Li, Gongsheng / Jia, Xianzheng / Sun, Chunlong Inverse transmission eigenvalue problems with the twin-dense nodal subset Wang, Yu Ping / Shieh, Chung Tsun / Miao, Hong Yi Stability of the inverse boundary value problem for the biharmonic operator: Logarithmic estimates Choudhury, Anupam Pal / Heck, Horst https://www.degruyter.com/view/j/jiip.2017.25.issue-2/issue-files/jiip.2017.25.issue-2 .xml ----- end -----