IPNet Digest Volume 28, Number 05 June 17, 2021 Today's Editor: Patricia (Patti) K. Lamm, Michigan State University Today's Topics: Conference in Honor of M. Thamban Nair: Analysis, Inverse Problems, and Applications Algorithm Submission Invitation: Helsinki Deblur Challenge 2021 Postdoc: Mathematics of Deep Learning at Bath+Cambridge, UK RA/Postdoc: Background in Numerics with Interest in Inverse Problems, Keele U. Postdoc: Bayesian Computational Imaging at the Maxwell Institute, Edinburgh, UK PhD, Postdoc, Research Group Leader: Positions in Inverse Problems, U. Göttingen Faculty Position: Large-Scale Inverse Problems and Data Assimilation, KU Leuven, Belgium Faculty Position: Inverse Problems, Parameter ID, Machine Learning, U. Bremen Table of Contents: Inverse Problems in Science and Engineering Submissions for IPNet Digest: Mail to ipnet-digest@math.msu.edu Information about IPNet: https://ipnet.math.msu.edu/ From: Radha R <radharam@iitm.ac.in> Date: Saturday, June 5, 2021

The Department of Mathematics, Indian Institute of Technology Madras, India is organizing an international conference on "Analysis, inverse problems and applications " during March 7-10, 2022.

The aim of this international conference is to bring together active researchers working in the fields of mathematical analysis, inverse problems and their applications in engineering sciences to showcase their state of the art research and exchange their innovative ideas by enlightening technical discussions.

In this conference, the well known Indian mathematician Professor M. Thamban Nair, will be honoured on the occasion of his 65th birthday.

The conference will have several invited lectures by renowned mathematicians and engineers working in the areas mentioned above. Young researchers will also be given an opportunity to share their research work by means of short presentations.

Those interested in giving short oral presentations of their research work in the areas mentioned above are requested to send the abstract (within 100 words) to icaipa2022[@]gmail.com

Last date for receiving abstracts: September 30, 2021

Submitted by Conference Coordinator:

Subject: conference announcement

Dr. R. Radha, Professor, Department of Mathematics, Indian Institute of Technology Madras, Chennai - 600036, INDIA. Ph : 91-44- 22574620 e-mail : radharam@iitm.ac.in From: "Siltanen, M Samuli" <samuli.siltanen@helsinki.fi> Date: Tuesday, May 25, 2021 Subject: Helsinki Deblur Challenge 2021 Helsinki Deblur Challenge 2021 invites algorithm submissions, see http://fips.fi/HDC2021.php. The goal is to apply deconvolution to photographs of random text strings, and the quality of reconstruction is measured by machine-reading the resulting images with a standardized OCR software. Then it is straightforward to count the correctly identified characters. The open dataset is measured with an actual camera, and it contains 10 different levels of misfocus ranging from mild to severe. The data challenge is organised by the Finnish Inverse Problems Society FIPS. Submitted by: Samuli Siltanen Professor of Industrial Mathematics Vice Dean of the Faculty of Science University of Helsinki, Finland Tel. +358 29 415 1420 Homepage: www.siltanen-research.net From: Matthias Ehrhardt <me549@bath.ac.uk> Date: Wednesday, May 26, 2021 Subject: 3-year Post-Doctoral Research Associate on the Mathematics of Deep Learning, Bath+Cambridge, UK 3-year Post-Doctoral Research Associate on the Mathematics of Deep Learning \_\_\_\_\_ Deadline: June 30, 2021 Links: https://www.bath.ac.uk/jobs/Vacancy.aspx?ref=CC8323 (Bath) and https://www.jobs.cam.ac.uk/job/29851/ (Cambridge) Description: We are hiring Post-Doctoral Research Associates to work in the EPSRC Programme Grant EP/V026259/1 on the "Mathematics of Deep Learning" jointly run by the University of Cambridge, the University of Bath and University College London. The

successful candidate will join a close knit team hosted by all three universities and led by Profs Carola-Bibiane Schönlieb and Richard Nickl (Cambridge), Prof Chris Budd OBE and Dr Matthias Ehrhardt (Bath) and Profs Simon Arridge and Bangti Jin (UCL). This is an exceptional opportunity to conduct ambitious research at the forefront of mathematics, statistics and machine learning.

Qualifications: Applicants must have (or about to receive) a PhD degree in mathematics or statistics (or a closely related discipline). The ideal candidates will be

experienced in one or more of the following areas: mathematical or computational analysis, mathematical statistics, inverse problems, machine learning, mathematical imaging, optimisation and/or data science. Experience in programming is desirable (e.g. MATLAB / Python, Tensorflow/PyTorch).

Submitted by: Matthias J Ehrhardt, PhD Prize Fellow and Leverhulme Early Career Fellow Department of Mathematical Sciences Office: 6 West, 1.08, Tel: 0044 1225 38 6194 University of Bath, UK https://mehrhardt.github.io

From: Paul Ledger <p.d.ledger@keele.ac.uk> Date: Tuesday, June 1, 2021 Subject: RA/Post-doc position at Keele University

We have open 3 year RA (post-doctoral) position at the School of Computing & Mathematics, Keele University (UK) on a new EPSRC funded project with Department of Mathematics, The University of Manchester (UK). The position would suit an Applied Mathematician/Computational Engineer/Physicist with a background in Numerics, an interest in Inverse Problems / Electromagnetics / Object Classification and good programming skills.

For further details and to apply please see https://www.jobs.ac.uk/job/CGI810/research-associate Paul Ledger

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From: "Pereyra, Marcelo" <M.Pereyra@hw.ac.uk> Date: Tuesday, June 1, 2021 Subject: POSTDOC: Postdoc in Bayesian computational imaging at the Maxwell Institute in Edinburgh, UK (36-month fixed term contract)

Dear colleagues,

We are looking for outstanding candidates for a 3-year postdoc position to work on Project BLOOM: Bayesian computation for low-photon imaging, at the prestigious Maxwell Institute for Mathematical Sciences in Edinburgh, UK.

This an ambitious 4-year project involving 2 postdocs and 2 PhD students, with the aim of developing new computational imaging methodology to solve challenging inverse problems related to low-photon imaging. The proposed computational imaging methods will be used to support the development of new quantum-enhanced imaging technologies that exploit the quantum nature of light in order to dramatically advance imaging sciences. Several exciting applications will be studied during the project, such as low-photon multispectral single-pixel imaging, high-resolution passive tomography using high-energy photons, and single-photon 3D LIDAR with array sensors.

The research work will be rooted in the Bayesian statistical paradigm and tightly

combine ideas from modern optimisation, machine learning, and computational statistics to develop radically new forms of computational imaging methodology specialised for these challenging inverse problems. The project will be developed in partnership with the Heriot-Watt Institute for Sensors, Signals and Systems, and in close collaboration with the UK Quantum Technology Hub in Quantum Enhanced Imaging, ENS Paris Saclay, the University of Illinois, and the industrial partner Leonardo UK. The project is funded by UKRI EPSRC (EP/V006134/1 and EP/V006177/1).

We are particularly keen to encourage applicants with a strong computational imaging or image processing profile. The successful candidate will integrate a multidisciplinary team and work closely with the lead investigators Marcelo Pereyra, Kostas Zygalakis, and Yoann Altmann. A demonstrable ability to produce academic writing of the highest publishable quality is essential. The position is 36-month fixed-term contract.

For more information, please see http://www.macs.hw.ac.uk/~mp71/bloom.html. Candidates can make informal enquiries about this position to Marcelo Pereyra (m.pereyra@hw.ac.uk) and Yoann Altmann (y.altmann@hw.ac.uk). The job advert will close on 28/06/2021.

Best wishes, Marcelo Pereyra

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From: "Hohage, Thorsten" <hohage@math.uni-goettingen.de> Date: Wednesday, June 16, 2021 Subject: PhD, Postdoc, and Research Group Leader Positions at University of Göttingen

The following positions in Inverse Problems are advertised at the University of Göttingen, Germany:

• 2 PhD positions for 3 years in the Research Training Group 2088 in the field of regularization theory for statistical inverse problems (project B01 and B02) starting October 1 or earlier. Deadline for applications is June 30. For details, see https://www.uni-goettingen.de/de/305402.html?cid=100865

• 1 postdoc position for 2 years in the group of Thorsten Hohage starting August 1. Deadline for applications is June 30. For details, see https://www.uni-goettingen.de/de/305402.html?cid=100866

• 1 Research Group Leader Position in CRC 1456. It will be equipped with one PhD position (75% TV-L E13) for three years. Moreover, there is the opportunity

to hire student assistants. The position should be filled as soon as possible and ends on 31.12.2024. Deadline for applications is June 30. For details, see https://www.uni-goettingen.de/de/305402.html?cid=100846

From: Wim Michiels Wim.Michiels@cs.kuleuven.be [via NADIGEST] Date: June 10, 2021 Subject: Faculty Position, KU Leuven, Belgium

Faculty Position, Numerical Methods for Large-Scale Inverse Problems and Data Assimilation, KU Leuven, Belgium

The research unit NUMA, Department of Computer Science, invites applications for a full-time faculty position. The unit covers many aspects of numerics, incl. approximation theory, numerical integration, numerical (multi)linear algebra, numerical PDEs, uncertainty quantification, optimization and control, discrete optimization and scheduling, data science, HPC and applied numerical mathematics. The recent surge in advanced techniques for data acquisition gives rise to computational tasks of a complexity beyond numerical simulation as integrating measurement data in complex models requires specific numerical algorithms. In the simplest setting, finding the "best" model parameters given some measurement data is an optimization problem. However, demands of practical applications often go far beyond this optimization: one can, for instance, also be interested in quantifying the uncertainty on the resulting optimum, the remaining modeling error with respect to the physical system, or the evolution of the model as a function of time. The new faculty position aims to strengthen NUMA's position in scientific computing towards a data rich environment. The successful candidate is expected to develop a research program in inverse problems and data assimilation, ensure high-quality education within the area of mathematical engineering, and be prepared to provide scientific, social and administrative services.

For further details, contact information and the application procedure (deadline October 11), follow the link: https://urldefense.com/v3/\_\_https://www.kuleuven.be/personeel/jobsite/jobs/60021670?hl= en&lang=en ;!!HXCxUKc!imuMdfN 04A p5m16cR02T819x7yQuzlJ0162e6Nph1hL QdHeInrFVQ4d6pcnsf\$

From: Andreas Rademacher arademac@uni-bremen.de [via NADIGEST] Date: June 09, 2021 Subject: Full Professor Position, Applied and Industrial Math, Univ of Bremen

The Mathematics and Computer Science Department at the University of Bremen is hiring a Full Professor in the field of Applied and Industrial Mathematics (salary grade W3). We are looking for a mathematician (f/m/d) highly recognized in the field of applied and industrial mathematics and with special interest in applications. The professorship is embedded into the Center for Industrial Mathematics (ZeTeM). Participation in the center's leadership is desirable. The scientific focus of this professorship is preferably in the area of inverse problems, parameter identification, or mathematical methods in machine learning. The research profile should provide links to the existing research topics of ZeTeM, of the Department, as well as of the university's high-profile areas. We are searching for a personality with an excellent publication record in the fields mentioned above, who has proven her or his ability to bridge the gap between

theory, applied research, and industrial practice. The appointed person will independently represent these fields in research, teaching, and applications. Experience in heading research teams, strategic planning of these teams, and, most important, in acquisition and implementation of R&D projects on national and international scale is a prerequisite.

For application details, see: https://urldefense.com/v3/\_\_https://www.uni-bremen.de/en/university/the-university-as-an -employer/job-vacancies-\_\_;!!HXCxUKc! imuMdfN\_04A\_p5m16cR02T819x7yQuzlJ0162e6Nph1hL\_QdHeInrFVQ4fiSDLEH\$ 1/ieb/(CF7)ellach\_2efd1221e07800bfce4202d2bd5b2007

1/job/657?cHash=2cfd1321c07809bf6a4292d2bd5b3007

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From: "alerts@tandfonline.com" <alerts@tandfonline.com> Date: Sunday, May 23, 2021 Subject: Inverse Problems in Science and Engineering, Volume 29, Issues 6-7

Inverse Problems in Science and Engineering June 2021 Volume 29, Issue 6 Table of Contents

River discharge and bathymetry estimation from SWOT altimetry measurements K. Larnier, J. Monnier, P.-A. Garambois & J. Verley

Modified method S-, and R-approximations in solving the problems of Mars's Morphology T. V. Gudkova, I. E. Stepanova, A. V. Batov & A. V. Shchepetilov

An inverse shape design problem in determining the optimal snowflake-shaped fins Cheng-Hung Huang & Yi-Tsan Chen

Evaluation of electrical conductivity and magnetic permeability variations with depth from surface voltage measurements John Bowler, Nguyen Trung Thành & Paul Sacks

Damage detection of a cable-stayed bridge based on combining effective intrinsic mode functions of empirical mode decomposition using the feature selection technique Hossein Babajanian Bisheh, Gholamreza Ghodrati Amiri, Masoud Nekooei & Ehsan Darvishan

Recovery of a quadratic analytic pencil Elif Başkaya & Amin Boumenir

https://www.tandfonline.com/toc/gipe20/29/6

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Inverse Problems in Science and Engineering July 2021 Volume 29, Issue 7 Table of Contents

Identification of the timewise thermal conductivity in a 2D heat equation from local heat flux conditions M. J. Huntul

An efficient numerical method to solve inverse fuzzy-uncertain viscoelastic problems of identification Ruifei Peng, Yiqian He & Haitian Yang

A homogenization function technique to solve the 3D inverse Cauchy problem of elliptic type equations in a closed walled shell Chein-Shan Liu, Yaoming Zhang & Fajie Wang

Reconstruction algorithm for 3D Compton scattering imaging with incomplete data G. Rigaud & B. N. Hahn

Recovering space-dependent source for a time-space fractional diffusion wave equation by fractional Landweber method Su-Zhen Jiang & Yu-Jiang Wu

Identifying unknown source in degenerate parabolic equation from final observation Ranran Li & Zhiyuan Li

Non-convex <code>{\_p</code> regularization for sparse reconstruction of electrical impedance tomography Jing Wang

https://www.tandfonline.com/toc/gipe20/29/7
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