IPNet Digest Volume 28, Number 04 May 20, 2021 Today's Editor: Patricia (Patti) K. Lamm, Michigan State University Today's Topics: Online Workshop: Mathematics for Detecting, Locating and Characterising Metal Objects PhD position: Gaussian Beams for Ultrasound Tomography at UCL PhD position: Inverse Problems at Klagenfurt University PhD positions: Machine Learning Genoa Center (MaLGa) Table of Contents: Inverse Problems 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: Paul Ledger <p.d.ledger@keele.ac.uk> Date: Friday, April 30, 2021 Subject: Workshop on "Mathematics for Detecting, Locating and Characterising Metal Objects", 1st June 14:00-17:00 BST. Workshop on "Mathematics for Detecting, Locating and Characterising Metal Objects",

Researchers from Keele University, The University of Manchester and their project collaborators are jointly organising, with ICMS, an afternoon to promote their recent research developments and to build a research/end-user community for metal detection.

1st June 14:00-17:00 BST.

Sponsored by EPSRC and the Royal Society, research on the mathematical theory underpinning new developments in detecting, locating and characterising metal objects has progressed in recent years.

Application areas for this technology are widespread. Areas of interest include, but are not limited to: early detection of threat objects (e.g. knives and guns) for security screening at transport hubs and public events; identification of hidden anti-personal mines and unexploded ordnance in areas of former conflict; identification of metallic objects of value in treasure hunts and in archaeological searches; non-destructive testing and determining integrity of reinforcement in concrete structures; ensuring food safety by identification of unwanted metallic contamination; scrap sorting to identify precious metals; finding hidden cables in walls and underground; discriminating between different coins in vending machines and automated checkouts.

This afternoon event is our initial community building activity and will include:

• A series of short presentations from Keele University and The University of

Manchester overviewing the research in this area • Short metal detection challenges 'pitches' by end users - followed by breakout sessions linking these challenges and the research • Discussion forum - how to support the activity going forward To find out more and to register please go to https://www.icms.org.uk/events/event/?id=1149 Best regards Paul Ledger and Bill Lionheart -----From: "Betcke, Marta" <m.betcke@ucl.ac.uk> Date: Thursday, May 13, 2021 Subject: PhD studentship: Gaussian Beams for Ultrasound Tomography at UCL PhD studentship: Gaussian Beams for Ultrasound Tomography at UCL I would like to bring to your attention a 4 year PhD position available at University College London (UCL). The successful candidate will work with Marta Betcke, Ben Cox and Ashkan Javaherian on novel solvers based on Gaussian Beams for Ultrasound Tomography (UST). The project is on the boundary of numerical analysis, scientific computing and inverse problems. There will be opportunities to pursuit some machine learning aspects too. More details can be found under the link below https://www.findaphd.com/phds/project/gabus-gaussian-beam-framework-for-ultrasoundcomputed-tomography/?p132415 Submitted by: Dr Marta M. Betcke Associate Professor Dept. Computer Science University College London 90 High Holborn WC1V 6LJ London, UK Email: m.betcke@ucl.ac.uk Tel: +44 (0)20 3549 5568 (Direct Dial) -----

From: "Elena Resmerita" <elena.resmerita@aau.at> Date: Friday, May 14, 2021 Subject: PhD position in Inverse Problems at Klagenfurt University

I would like to announce a PhD position in Inverse Problems at Klagenfurt University (application deadline: June 9):

https://urldefense.com/v3/__https://jobs.aau.at/en/job/1-predoc-position-in-inverseproblems-all-genders-welcome/__;!!HXCxUKc!h_ecPQZ41ptAC00u1RcKCynyidneoSqDqiYUJEuAxMCCw3Rr_HsAIGBX1eS9kaAwAzajYk\$

Thank you, Elena Resmerita

From: Machine Learning Genoa Center <malga@unige.it>

Date: Friday, May 14, 2021 Subject: PhD positions at MaLGa, Machine Learning Genoa Center It is a pleasure to announce the call for an expression of interest for several PhD positions at the Machine Learning Genoa Center (MaLGa, https://ml.unige.it), University of Genoa, starting in November 2021. We cover a wide range of topics related to machine learning, from theoretical research of the mathematics of ML to the applications in real-world scenarios. More precisely, MaLGa is made of 4 units: - Computational and Statistical Learning (ML theory and algorithms, optimization, statistical learning) - Computational Harmonic Analysis & Machine Learning (applied harmonic analysis, inverse problems, PDE, mathematics of ML) - Machine Learning for Data Science (biomedical data analysis, network analysis and inference for websites, time series analysis) - Machine Learning & Vision (human pose and motion understanding, well-being estimation, object recognition, object detection and tracking) Info and form (deadline 31/5): https://ml.unige.it/job posts/ From: "noreply@iopscience.org" <noreply@iopscience.org> Date: Thursday, May 6, 2021 Subject: Content, Inverse Problems, Volume 37, Number 5, May 2021 May 2021 Volume 37, Number 5 Inverse Problems Table of Contents On a three-dimensional Compton scattering tomography system with fixed source J Cebeiro, C Tarpau, M A Morvidone, D Rubio and M K Nguyen Frame decompositions of bounded linear operators in Hilbert spaces with applications in tomography Simon Hubmer and Ronny Ramlau A penalty-free approach to PDE constrained optimization: application to an inverse wave problem Alexandre Hoffmann, Vadim Monteiller and Cédric Bellis Bayesian inversion for electromyography using low-rank tensor formats Anna Rörich, Tim A. Werthmann, Dominik Göddeke and Lars Grasedyck Imaging of buried obstacles in a two-layered medium with phaseless far-field data Long Li, Jiansheng Yang, Bo Zhang and Haiwen Zhang On Calderón's inverse inclusion problem with smooth shapes by a single partial boundary measurement Hongyu Liu, Chun-Hsiang Tsou and Wei Yang A model reference adaptive system approach for nonlinear online parameter identification Barbara Kaltenbacher and Tram Thi Ngoc Nguyen

Simultaneous inversion of the potential term and the fractional orders in a multi-term time-fractional diffusion equation L L Sun, Y S Li and Y Zhang

Computational approaches to non-convex, sparsity-inducing multi-penalty regularization Željko Kereta, Johannes Maly and Valeriya Naumova

Quantitative PAT with simplified P N approximation Hongkai Zhao and Yimin Zhong

The enclosure method for a generalized anisotropic complex conductivity equation Rulin Kuan

Phaseless inverse scattering with background information R G Novikov and V N Sivkin

Laboratory application of sampling approaches to inverse scattering Fatemeh Pourahmadian and Hao Yue

https://iopscience.iop.org/issue/0266-5611/37/5

From: "alerts@tandfonline.com" <alerts@tandfonline.com> Date: Friday, May 14, 2021 Subject: Contents, Inverse Problems in Science and Engineering, Volume 29, Issue 5, May 2021

Inverse Problems in Science and Engineering

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Identifying an unknown source term in a heat equation with time-dependent coefficients Nguyen Van Duc, Luong Duy Nhat Minh & Nguyen Trung Thanh

Non-linear structural parameter identification using instantaneous power flow balance approach R. Anish & K. Shankar

Near-field subsurface tomography and holography based on bistatic measurements with variable base Konstantin P. Gaikovich, Yelena S. Maksimovitch & Vitaly A. Badeev

Chebyshev pseudospectral method in the reconstruction of orthotropic conductivity Everton Boos, Vanda M. Luchesi & Fermín S. V. Bazán

An inverse problem of a simultaneous reconstruction of the dielectric constant and conductivity from experimental backscattering data Vo Anh Khoa, Grant W. Bidney, Michael V. Klibanov, Loc H. Nguyen, Lam H. Nguyen, Anders J. Sullivan & Vasily N. Astratov

Identify the distribution of 2D residual stresses around notches based on the

Willis-form equations Zhuyou Hu, Jianing Xie, Jinlong Zhao, Yixiao Sun & Zhihai Xiang

https://www.tandfonline.com/toc/gipe20/29/5
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