IPNet Digest Volume 28, Number 03 April 22, 2021

Today's Editor: Patricia (Patti) K. Lamm, Michigan State University

Today's Topics:

Submissions for IPNet Digest:
Mail to ipnet-digest@math.msu.edu

Information about IPNet:
https://ipnet.math.msu.edu/

From: Simon Arridge <S.Arridge@cs.ucl.ac.uk>
Date: Monday, April 19, 2021
Subject: Online Workshop: Inverse Problems and Optimisation (Exascale Inverse Problems)

Workshop on “Inverse Problems and Optimisation” 6-7 May 2021

Inverse problems are concerned with the recovery of the parameters of a forward model given observations of data that it describes. Such problems arise in almost all fields of science when details of a postulated model, such as maps of physical properties and/or their classification into identifiable objects, have to be determined from a set of observed data. The inverse problem topic is highly cross-disciplinary, both within mathematics, encompassing aspects of pure, applied and statistics, and across subjects, including physical sciences, engineering and biology to name only a few. Inverse problems increasingly consider mappings between solutions and data in high numbers of dimensions (e.g. three in space plus time plus wavelength). Direct representations easily exceed existing computational and memory resources, and necessitate appropriate design of data structures and algorithms. In parallel, machine learning methods designed for “big data” problems are proving useful in developing data reduction approaches and representation of appropriate priors. Some of the topics of this planned workshop include scheduling and optimising parallelism for multiple forward solves as part of a nonlinear inverse problem on exascale architectures; the combination of inference-based machine learning techniques and classical model based inverse problems at scale, and their often differing hardware requirements (e.g. GPU vs CPU); using exascale computing to include uncertainty in the formulation of inverse problems.

Futher Details and Registration at
https://excalibur-sle.github.io/workshop4.html

Best Regards
Simon Arridge and Timo Betcke

From: Sergey Dolgov <sd901@bath.ac.uk>
Date: Tuesday, April 20, 2021
Subject: Mathematics and Algorithms for Data Online Workshop: 7th May 2021

The Centre for Mathematics and Algorithms for Data (MAD) at the University of Bath (UK) is pleased to announce an online workshop to be held on Friday 7th May 2021.

The workshop focuses on function approximations in machine learning, reinforcement learning and applications.

For details about the speakers and schedule please visit https://mathematics-and-algorithms-for-data.github.io/events/workshop2/

Attendance is free, but please register your email following the above link, so we can send you Zoom and Gather links.

Questions can be addressed to s.dolgov@bath.ac.uk

From: Compumag <secretariat@compumag2021.com>
Date: Friday, April 9, 2021
Subject: Reminder call for papers Compumag Cancun

Dear Colleague,

This is a reminder of the call for papers for Compumag, Cancun.

Due to the Covid-19 pandemic, the conference Compumag 2021 - originally planned to take place in July 2021 - has been rescheduled for 16th-20th January 2022. The submission date has been moved to 16th June 2021. The conference will be held at the Cancun Convention Center in Cancun, Mexico.

There will be invited speakers, oral, and poster sessions. Authors with an accepted and presented digest are encouraged to submit a full paper for its possible publication in an issue of IEEE Transactions on Magnetics.

Topics of interest include mathematical modelling, static and quasi-static fields, wave propagation, electromagnetic compatibility, nano-electromagnetic computation, bio-electromagnetic computation, electromagnetic sensors, photonics, optoelectronics, material modelling, multi-physics, multi-scale modeling, optimization, numerical techniques, software methodology, novel computational methods for electric machines and drives, and education.

The online submission of the two-page digest for Compumag Cancun is open. The following link will direct you to the conference website:

www.compumag2021.com

The conference will take place in Cancun, Mexico, that is a recognized city throughout the world for its spectacular white sand beaches, its fascinating sea in turquoise blue tones, Mayan culture, water activities, and adventure.

We are looking forward to meeting you in Cancun, Mexico in January 2022.

Sincerely,

Organizing Committee
23rd Int. Conf. on the Computation of Electromagnetic Fields (COMPUMAG)
January 16th-20th, 2022
Cancun, Mexico
www.compumag2021.com

From: Per Christian Hansen <pcha@dtu.dk>
Date: Tuesday, April 13, 2021
Subject: PhD positions, Computational UQ, Technical Univ. of Denmark

The Technical University of Denmark opens several 3-year PhD positions starting in the fall of 2021. They are part of the research project CUQI: Computational Uncertainty Quantification for Inverse problems www.compute.dtu.dk/english/cuqi.

Our goal is to create a platform for modeling and computations needed to apply UQ to a range of inverse problems in academia and industry. All PhD students will work individually and as team members supported by dedicated supervisors. Applicants are also expected to contribute to teaching, training activities, and supervision of students.

The PhD positions will focus on four areas:

. Handling large-scale inverse problems via dimensionality reduction, surrogate modeling, multi-fidelity sampling algorithms, etc. We also study how to handle errors and uncertainties in the reconstr. model.
. Development and use of stochastic optimization methods for efficient sampling and for handling of implicitly given priors without the need to tune the algorithm parameters.
. Theory, algorithms and diagnostic tools for handling uncertain parameters in the likelihoods and priors via hyper-parameters and associated hyper-priors.
. Besov priors for producing piecewise smooth reconstructions and for detection of edges and interfaces, e.g., in PDE formulations of image deblurring and computed tomography.

For more details and to apply (deadline May 25), see: https://tinyurl.com/CUQI-PhD-5

Per Christian Hansen, Yiqiu Dong and Martin S. Andersen

Submitted by:
Professor Per Christian Hansen

Villum Investigator
Section for Scientific Computing
DTU Compute - Technical University of Denmark
Tel +45 23.65.27.98
http://www2.compute.dtu.dk/~pcha/
CUQI project: https://www.compute.dtu.dk/cuqi

From: Oliver Ernst oernst@math.tu-chemnitz.de [via NADIGEST]
Date: April 03, 2021
Subject: Faculty Position, Numerical Methods for PDEs, TU Chemnitz, Germany

The Department of Mathematics at the Technical University of Chemnitz invites applications for a W3-Professorship (tenured) in Numerical Methods for Partial Differential Equations

Successful candidates are expected to be internationally visible in an area of numerical methods for partial differential equations with a strong focus on applications, preferably related to optimization. Of special interest are also the areas of inverse problems, stochastic or random differential equations and scientific machine learning.

The official advertisement in German and English for this search is found at
https://urldefense.com/v3/__https://www.tu-chemnitz.de/verwaltung/personal/stellen/W3_Numerik_part_Diff.php__;!!HXCxUKc!mcxLTWU7p2sMM-bbHGL7oQ0NTZ3RpiA-t1foXipLQc89crY6DvbUAf91jumvKaFM$
and contains additional details.

The closing date is May 2, 2021.

From: Alexander Ramm <ramm@ksu.edu>
Date: Thursday, April 15, 2021
Subject: Navier-Stokes problem

Dear Colleagues,
In the book
https://www.morganclaypoolpublishers.com/catalog_Orig/product_info.php?products_id=1624
I prove that the Navier-Stokes problem is physically and mathematically wrong. This follows from the paradox: if one assumes that the initial condition is not zero and the solution exists for all t>0 then one proves that the initial condition is zero.

Best regards,
Alexander Ramm

From: George Anastassiou <ganastss2@gmail.com>
Date: Thursday, April 8, 2021
Subject: please post about my new monograph

https://link.springer.com/book/10.1007/978-3-030-71481-9

Submitted by:
George A. Anastassiou,Ph.D
DOCTOR HONORIS CAUSA
Professor of Mathematics
Department of Mathematical Sciences
The University of Memphis, Memphis,TN 38152,USA
Editor-In-Chief JoCAAA, JCAAM,JAFA ;World Sci.Publ.Book Series: Concrete & Applicable Math. Springer Consultant-Editor in computational math books Birkhauser Consultant Editor in A.M.Sci.
ganastss@memphis.edu

From: AIMS Updates <updates@aims-newsletter.org>
Date: Friday, March 26, 2021
Subject: New Issue IPI: Now Available Online

Inverse Problems & Imaging (IPI) June 2021 Vol. 15, No. 3
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Research Articles:

https://www.aimsciences.org/journal/1930-8337/2021/15/3

From: noreply@iopscience.org
Date: April 17, 2021
Subject: Inverse Problems, Volume 37, Numbers 2-4, 2021

Inverse Problems February 2021 Volume 37, Number 2
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Papers:

https://iopscience.iop.org/issue/0266-5611/37/2

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Inverse Problems March 2021 Volume 37, Number 3

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Papers:

A projected Bouligand–Landweber iteration for non-smooth ill-posed problems
Zhenwu Fu, Yong Chen and Bo Han

Unique continuation from a generalized impedance edge-corner for Maxwell’s system and applications to inverse problems
Huaian Diao, Hongyu Liu, Long Zhang and Jun Zou

Recovering a potential in damped wave equation from Dirichlet-to-Neumann operator
Vladimir Romanov and Alemdar Hasanov

https://iopscience.iop.org/issue/0266-5611/37/3

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Inverse Problems April 2021 Volume 37, Number 4

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Topical Review:

Papers:

Sarah Eberle and Bastian Harrach

Inexact Newton regularization combined with two-point gradient methods for nonlinear ill-posed problems
Bin Fan and Chuanju Xu

Total least squares problems on infinite dimensional spaces
Maximiliano Contino, Guillermina Fongi, Alejandra Maestripieri and Santiago Muro

Data-free likelihood-informed dimension reduction of Bayesian inverse problems
Tiangang Cui and Olivier Zahm

Regularisation, optimisation, subregularity
T Valkonen

Stably determining time-dependent convection–diffusion coefficients from a partial Dirichlet-to-Neumann map
Mourad Bellassoued and Oumaima Ben Fraj

Monotonicity Principle in tomography of nonlinear conducting materials
Antonio Corbo Esposito, Luisa Faella, Gianpaolo Piscitelli, Ravi Prakash and Antonello Tamburrino

Predictive risk estimation for the expectation maximization algorithm with Poisson data
Paolo Massa and Federico Benvenuto

Solving an inverse heat convection problem with an implicit forward operator by using a projected quasi-Newton method
Dimitri Rothermel and Thomas Schuster

https://iopscience.iop.org/issue/0266-5611/37/4
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