

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

Today's Topics:

Symposium: Houston Imaging Sciences Symposium

Workshop: Generative Models, Parameter Learning and Sparsity

Workshop: New Mathematical Methods in Computational Imaging

Postdoctoral Position: Math Analysis & Computations for Coupled-Physics Tomography

Postdoctoral Position: Markov Chain Monte Carlo Techniques for EQUIP Project

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Submissions for IPNet Digest:

Mail to [ipnet-digest@math.msu.edu](mailto:ipnet-digest@math.msu.edu)

Information about IPNet:

<http://ipnet.math.msu.edu>

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From: Eric Miller <[elmliller@ece.tufts.edu](mailto:elmliller@ece.tufts.edu)>

Subject: Imaging Sciences Symposium

Date: May 3, 2017

Houston Imaging Sciences Symposium

This is the first call for abstracts/pre-registration for a two-day Imaging Sciences symposium to be held in Houston, TX on October 2nd-3rd, 2017.

Main focus for symposium:

- A two-day symposium to bring together experts and practitioners of imaging sciences in various industry, including but not limited to oil and medical industries.
- Focus on the mathematical and numerical aspects of imaging, bringing in more detail than what we can see at SEG or other industry conferences. At the same time, the focus will also be on how to apply the mathematics to solve industry problems of today.
- Take a look at what the future holds for imaging, find intersection between imaging and all the fantastic improvements in machine learning, reduced order models, compressive sensing, etc.

There are no tracks at this symposium, the talks will be attended by all participants. We plan to have four sessions, each with one plenary speaker followed by talks. Each talk can be 45 mins long, followed by 10 mins for Q&A.

Please submit a short abstract (1 page or less), including your name, affiliation. Also, please indicate which of the four sessions your talk will best fit into:

1. Tomographic imaging: Lead by Dr. Eric Miller, Tufts
2. Reflection imaging: Lead by Dr. Bill Symes, Rice
3. Image Processing: Lead by Dr. David Fuentes, MD Anderson
4. Future of Imaging: Lead by Dr. Maarten DeHoop, Rice

Talks that fit well within the focus described above will be more likely to be picked.  
Please submit abstracts by June 30th, 2017 to [houstonimaging2017@gmail.com](mailto:houstonimaging2017@gmail.com)

At the time, we would also like those who plan to attend to pre-register so that we can get an idea of the number of attendees for planning our logistics. Please respond using the Google form ASAP

<https://goo.gl/forms/HddqmsraT9guK7513>

Submitted by: Eric L. Miller  
Professor and Chair, Electrical and Computer Engineering  
Adjunct Professor of Computer Science  
Adjunct Professor of Biomedical Engineering  
Email: [eric.miller@tufts.edu](mailto:eric.miller@tufts.edu)  
Web: <http://www.ece.tufts.edu/~elmliller/elmhome/>  
Phone: 617.627.0835 FAX: 617.627.3220  
Ground: Halligan Hall Room 101A, 161 College Ave.  
Medford Ma, 02155

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From: Candy Smellie <[communications@newton.ac.uk](mailto:communications@newton.ac.uk)>  
Subject: Upcoming Workshop - Generative models, parameter learning and sparsity - 30 October - 3 November 2017  
Date: May 3, 2017

Upcoming Workshop -  
Generative models, parameter learning and sparsity  
30 October - 3 November 2017

Attend this workshop at the Isaac Newton Institute and interact and engage while working on the review, exchange and promoting of recent advances in generative models, parameter learning and sparsity.

A key issue in image reconstruction, and in inverse problems as a whole, is the correct choice of image priors (or regularisation functionals) and data models (or fidelity terms) in a variational or Bayesian reconstruction model. Depending on the setup of the model, very different qualitative image reconstruction results are obtained. This workshop will cover many topics around this - Read more here.

This is the second event and part of the activities for a long term programme on Variational methods and effective algorithms for imaging and vision (1 Sept-- 31 Dec 2017) organised by Ke Chen, Andrew Fitzgibbon, Michael Hintermüller, Carola-Bibiane

Schönlieb, and Xue-Cheng Tai.

List of invited and confirmed speakers includes (to expand): F Bach, R Baraniuk, J Calder, J Chung, J Delon, M Figueiredo, E Haber, A Hansen, L Horesh, P Milanfar, M Peyrera, B Plemmons, L Ruthotto, P Weiss, R Willett.

This workshop is organised by:

- Simon Arridge (University College London),
- Martin Burger (Universität Münster),
- Michael Hintermüller (Humboldt-Universität zu Berlin),
- Nick Kingsbury (Trinity College, Cambridge),
- Gabriel Peyre (CNRS - Ecole Normale Supérieure Paris),
- Guillermo Sapiro (Duke University),
- Carola Schönlieb (University of Cambridge)

This workshop is open for registration but closes shortly. Deadline for Oral/Poster presentation: 30 June 2017. Deadline for participation (only): 31 July 2017. Participation remotely is possible.

Submitted by: Candy Smellie, Information Coordinator  
Isaac Newton Institute for Mathematical Sciences  
20 Clarkson Road  
Cambridge CB3 0EH  
Tel : 01223 335983

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From: "Pereyra, Marcelo" <m.pereyra@hw.ac.uk>  
Subject: Workshop - "New mathematical methods in computational imaging" - Heriot-Watt  
Edinburgh - 29th June 2017  
Date: May 16, 2017

Dear Colleagues,

This is a reminder for the Heriot-Watt workshop on "New mathematical methods in computational imaging", which will be held on the 29th of June 2017 at the School of Mathematical and Computer Sciences.

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: Jean-François Giovannelli

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](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.

Founded in 1821, Heriot-Watt is a leader in ideas and solutions. With campuses and students across the entire globe we span the world, delivering innovation and educational excellence in business, engineering, design and the physical, social and life sciences.

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From: Kim Knudsen <kiknu@dtu.dk>  
Subject: Postdoc position  
Date: May 25, 2017

Postdoc in Mathematical Analysis and Computations for Coupled-Physics Tomography

The Department of Applied Mathematics and Computer Science at the Technical University of Denmark ([www.compute.dtu.dk/english](http://www.compute.dtu.dk/english)) invites applications for a postdoc position starting August 1 2017 (or shortly thereafter), see <http://www.dtu.dk/english/career/job?id=822e52f5-4526-44dd-9d09-fac235c5db85>.

Candidates must have a PhD degree in applied mathematics, or equivalent academic qualifications, and some experience with mathematical analysis or numerical computations for inverse or imaging problems.

Applications must be submitted ONLINE by June 15, 2017.

More information can be obtained from Assoc. Prof. Kim Knudsen ([kiknu@dtu.dk](mailto:kiknu@dtu.dk)).

Submitted by: Kim Knudsen, Lektor  
Leder af DTU Compute ph.d.-skole  
DTU Compute  
Danmarks Tekniske Universitet  
Institut for Matematik og Computer Science  
Matematiktorvet  
Bygning 303 B, 106  
2800 Kgs. Lyngby  
Direkte telefon 45253026  
[kiknu@dtu.dk](mailto:kiknu@dtu.dk)

Subject: Postdoc position, MCMC methods, Heriot-Watt University, Edinburgh  
Date: May 3, 2017

The EQUIP project is funded by the UK's Engineering and Physical Sciences Research Council, and is aiming to develop uncertainty quantification techniques that can be applied to real world challenging problems.

Details of the vacancy and how to apply can be found at [https://www.hw.ac.uk/about/work/jobs/job\\_SVJDOTgzMA.htm](https://www.hw.ac.uk/about/work/jobs/job_SVJDOTgzMA.htm)

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Subject: Inverse Problems, Volume 33, Numbers 1, 5-6  
Date: May 4, 2017

Special Issue Paper  
Sparsity and level set regularization for diffuse optical tomography using a transport model in 2D  
Kernel Prieto, and Oliver Dorn

A two-phase segmentation approach to the impedance tomography problem  
Renier Mendoza, and Stephen Keeling

Uniform Penalty inversion of two-dimensional NMR relaxation data  
V Bortolotti, R J S Brown, P Fantazzini, G Landi, and F Zama

Elastic-net regularization versus  $\ell_1$ -regularization for linear inverse problems with quasi-sparse solutions

De-Han Chen, Bernd Hofmann, and Jun Zou

Erratum: Fast Gibbs sampling for high-dimensional Bayesian inversion (2016 Inverse Problems

32 115019) Felix Lucka

<http://iopscience.iop.org/issue/0266-5611/33/1>

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Inverse Problems

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Imaging of locally rough surfaces from intensity-only far-field or near-field data  
Bo Zhang, and Haiwen Zhang

Numerical reconstruction of unknown Robin inclusions inside a heat conductor by a  
non-iterative method  
Gen Nakamura, and Haibing Wang

Splitting methods for split feasibility problems with application to Dantzig selectors  
Hongjin He, and Hong-Kun Xu

A new approach to blind deconvolution of astronomical images  
S V Vorontsov, and S M Jefferies

On the convergence of a linesearch based proximal-gradient method for nonconvex  
optimization  
S Bonettini, I Loris, F Porta, M Prato, and S Rebegoldi

The inverse transmission eigenvalue problem for a discontinuous refractive index  
Drossos Gintides, and Nikolaos Pallikarakis

Generalized linear sampling method for elastic-wave sensing of heterogeneous fractures  
Fateme Pourahmadian, Bojan B Guzina, and Housseem Haddar

Sparse regularization on thin grids I: the Lasso  
Vincent Duval, and Gabriel Peyré

Stable determination of coefficients in the dynamical Schrödinger equation in a  
magnetic field  
Mourad Bellassoued

Photoacoustic image reconstruction: material detection and acoustical heterogeneities  
S Schoeder, M Kronbichler, and W A Wall

Joint reconstruction of dynamic PET activity and kinetic parametric images using total  
variation constrained dictionary sparse coding

Haiqing Yu, Shuhang Chen, Yunmei Chen, and Huafeng Liu

The noise distribution in a shear wave speed image computed using arrival times at fixed spatial positions

Jessica L Jones, Joyce McLaughlin, and Daniel Renzi

Weak unique continuation property and a related inverse source problem for time-fractional diffusion-advection equations

Daijun Jiang, Zhiyuan Li, Yikan Liu, and Masahiro Yamamoto

Inverse problems for Jacobi operators IV: interior mass-spring perturbations of semi-infinite systems

Rafael del Rio, Mikhail Kudryavtsev, and Luis O Silva

The inverse spectral problem for transmission eigenvalues

Samuel Cogar, David Colton, and Yuk-J Leung

Optical tomography on graphs

Francis J Chung, Anna C Gilbert, Jeremy G Hoskins, and John C Schotland

Linear convergence of CQ algorithms and applications in gene regulatory network inference

Jinhua Wang, Yaohua Hu, Chong Li, and Jen-Chih Yao

Reconstruction of faults in elastic half space from surface measurements

Darko Volkov, Christophe Voisin, and Ioan R Ionescu

Identification of the population density of a species model with nonlocal diffusion and nonlinear reaction

Nguyen Huy Tuan, Vo Van Au, Vo Anh Khoa, and Daniel Lesnic

$\epsilon$ -subgradient algorithms for bilevel convex optimization

Elias S Helou, and Lucas E A Simões

Beamspace fast fully adaptive brain source localization for limited data sequences

Maryam Ravan

Parameter identification in a semilinear hyperbolic system

H Egger, T Kugler, and N Strogies

<http://iopscience.iop.org/issue/0266-5611/33/5>

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Special Issue Paper

Sparsity regularization in inverse problems

Bangti Jin, Peter Maaß, and Otmar Scherzer

Special Issue Paper

An improved exact inversion formula for solenoidal fields in cone beam vector tomography

Alexander Katsevich, Dimitri Rothermel, and Thomas Schuster

Special Issue Paper

All-at-once versus reduced iterative methods for time dependent inverse problems

B Kaltenbacher

Recovery of an embedded obstacle and its surrounding medium from formally determined scattering data

Hongyu Liu, and Xiaodong Liu

Inversion of the conical Radon transform with vertices on a surface of revolution arising in an application of a Compton camera

Sunghwan Moon

A data-scalable randomized misfit approach for solving large-scale PDE-constrained inverse problems

E B Le, A Myers, T Bui-Thanh, and Q P Nguyen

Second-harmonic imaging in random media

Liliana Borcea, Wei Li, Alexander V Mamonov, and John C Schotland

Alternating minimisation for glottal inverse filtering

Ismael Rodrigo Bleyer, Lasse Lybeck, Harri Auvinen, Manu Airaksinen, Paavo Alku, and Samuli Siltanen

The Bayesian formulation and well-posedness of fractional elliptic inverse problems

Nicolás García Trillos, and Daniel Sanz-Alonso

<http://iopscience.iop.org/issue/0266-5611/33/6>

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From: Cuixin.zhou <newsletter-noreply@aimsclences.org>

Subject: Contents, IPI vol. 11, no. 3 June 2017

Date: May 9, 2017

Inverse Problems and Imaging

June 2017

Volume 11, Number 3

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A direct D-bar method for partial boundary data electrical impedance tomography with a priori information

Melody Alsaker, Sarah Jane Hamilton and Andreas Hauptmann



Reconstruction in the partial data Calderón problem on admissible manifolds  
Yernat M. Assylbekov

Ambient noise correlation-based imaging with moving sensors  
Mathias Fink and Josselin Garnier

Time-invariant Radon transform by generalized Fourier slice theorem  
Ali Gholami and Mauricio D. Sacchi

Recovering the boundary corrosion from electrical potential distribution using partial boundary data  
Jijun Liu and Gen Nakamura

Subspace clustering by  $(k,k)$ -sparse matrix factorization  
Haixia Liu, Jian-Feng Cai and Yang Wang

Probabilistic interpretation of the Calderón problem  
Petteri Piiroinen and Martin Simon

Image segmentation with dynamic artifacts detection and bias correction  
Dominique Zosso, Jing An, James Stevick, Nicholas Takaki, Morgan Weiss, Liane S. Slaughter, Huan H. Cao, Paul S. Weiss and Andrea L. Bertozzi

<http://aims sciences.org/journals/contentsListnew.jsp?pubID=954>

Submitted by: Cuixin Zhou

AIMS publication editor  
American Institute of Mathematical Sciences  
Springfield, MO 65801 USA  
zhoucuixin@163.com

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From: <noreply@degruyter.com>  
Subject: Contents, 'Journal of Inverse and Ill-posed Problems'  
Date: May 19, 2017

Journal of Inverse and Ill-posed Problems     June 2017     Volume 25, Issue 3  
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Stability result for two coefficients in a coupled hyperbolic-parabolic system  
Gaitan, Patricia / Ouzzane, Hadjer

Regularization and numerical solution of the inverse scattering problem using shearlet frames  
Kutyniok, Gitta / Mehrmann, Volker / Petersen, Philipp C.

Regularization method for an ill-posed Cauchy problem for elliptic equations

Benrabah, Abderafik / Boussetila, Nadjib / Rebbani, Faouzia

Scattered data fitting by minimal surface

Hao, Yong-Xia / Lu, Dianchen

A proximal iteratively regularized Gauss-Newton method for nonlinear inverse problems

Fu, Hongsun / Liu, Hongbo / Han, Bo / Yang, Yu / Hu, Yi

Compact discrepancy and chi-squared principles for over-determined inverse problems

Pisarenco, Maxim / Setija, Irwan D.

Inverse problems on a graph with loops

Yang, Chuan-Fu / Wang, Feng

On Nesterov acceleration for Landweber iteration of linear ill-posed problems

Neubauer, Andreas

Depth dependent resolution in Electrical Impedance Tomography

Alessandrini, Giovanni / Scapin, Andrea

<https://www.degruyter.com/view/j/jiip.2017.25.issue-3/issue-files/jiip.2017.25.issue-3.xml>

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