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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: Martin Holler <martin.holler@uni-graz.at>
Date: March 21, 2022
Subject: Mathematical Signal and Image Processing at the GAMM 92nd Annual Meeting

Dear Colleagues,

The GAMM 92nd Annual Meeting will be held at the RWTH Aachen University, Germany, August 15-19, 2022. We are happy to invite you to submit an abstract for session S21 'Mathematical Signal and Image Processing' and to announce our topical speakers:

* Kristian Bredies (University of Graz)
* Christoph Schnörr (University of Heidelberg)

Over the last decades mathematics has become the cornerstone in signal and image processing ranging from various methods for signal reconstruction to modelling of imaging modalities over its classical disciplines compression, denoising, segmentation, and registration to feature extraction. The used methodologies include such diverse fields as harmonic analysis, inverse problems, variational analysis, mathematical statistics, partial differential equations, optimization, approximation theory and sampling theory.

The aim of this section is to gather scientists working on the theory and applications of mathematical signal and image processing in order to present their research, exchange ideas, and start new collaborations.

Important Dates:

* Opening of online registration and abstract submission: February 1, 2022

* Abstract submission deadline for talks: May 01, 2022

* Closure of early online registration (Early fee): June 10, 2022

* Closure of online registration: July 31, 2022

Further information about the conference are available at
https://urldefense.com/v3/__https://jahrestagung.gamm-ev.de__;!!HXCxUKc!gyKwjLnSUgJWuSj9t7Iodw8YtB9GGFkEb74pOai0VTWYdoASKtqLx9NNb4SUJz580LMaSuM$.

We are looking forward to welcoming you in Aachen.

All the best,

Martin and Robert

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From: Per Christian Hansen <pcha@dtu.dk>
Date: Friday, March 25, 2022
Subject: Workshop: Imaging with Uncertainty Quantification (IUQ)

Workshop: Imaging with Uncertainty Quantification (IUQ)

September 27–29, 2022, Elsinore, Denmark

Imaging is everywhere in science and technology, and often there is a need for assessing the uncertainty of the reconstructions due to measurement noise, model errors, etc. We see an increasing interest in performing uncertainty quantification (UQ) for imaging applications, and for making such methods readily useful in applications.

This workshop aims at bringing together specialists in UQ for imaging, and we invite talks that cover various aspects related to the development of theory, methodology and software. We also welcome talks about

interesting applications of UQ in imaging. The goal is to stimulate networking and collaboration between researchers and students in these areas.

Before the workshop, we arrange a 1-day short course devoted to the Python software CUQIpy that we are currently developing for modeling and computations related to UQ for imaging.

For more details about the workshop, and to register, go to the IUQ Workshop homepage. https://people.compute.dtu.dk/pcha/CUQI/IUQworkshop.html

The workshop and training course are part of the activities in the research project CUQI, Computational Uncertainty Quantification for Inverse problems, funded by The Villum Foundation.
https://www.compute.dtu.dk/english/cuqi
https://veluxfoundations.dk/en/forskning/teknisk-og-naturvidenskabelig-forskning

Per Christian Hansen, Technical University of Denmark

Submitted by:

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CUQI project: https://www.compute.dtu.dk/cuqi

From: Pam Bye <Pam.Bye@ima.org.uk>
Date: Tuesday, March 22, 2022
Subject: Conference Listing

4th IMA Conference on the Mathematical Challenges of Big Data

19-20 September 2022 University of Oxford, hybrid

https://ima.org.uk/17625/4th-ima-conference
on-the-mathematical-challenges-of-big-data/

Submitted by:
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From: International Symposium on Theoretical Electrical Engineering
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Date: Thursday, April 7, 2022

Subject: ISTET 2022 Conference – abstract submission deadline is approaching

Dear colleagues and members of the scientific community,

We are pleased to announce that the XXI International Symposium on Theoretical Electrical Engineering ISTET 2022 will be held on June 28th–30th , 2022 in Szczecin, Poland. Due to the epidemiological situation of COVID-19, the Organizing Committee decided that the conference would be held online.

The 21st edition of ISTET conference will be organized under the auspices of the Faculty of Electrical Engineering of the West Pomeranian University of Technology, Szczecin. The ISTET symposium series is devoted to research and education in theory and applications of electromagnetic fields, electrical and electronic circuits, signal processing, and the design and control of electromagnetic systems.

We invite scientific community members in universities, research centers, and industry to attend the conference and present their recent achievements.

Abstract submission deadline is approaching.

Important dates:

April 30th, 2022 – one-page abstract submission deadline
May 15th, 2022 – notification of acceptance
May 10th – 31st, 2022 – early bird registration
after May 31st, 2022 – late registration
June 28th – 30th, 2022 – ISTET 2022 conference
August 31st, 2022 – full papers submission deadline

The ISTET 2022 conference early bird registration fee is:
• 150 EUR – regular
• 100 EUR – student

The late registration fee is:
• 199 EUR – regular
• 149 EUR – student

The authors are requested to prepare the one page short papers according to the recommendations presented in conference webpage. All information and the example (template) file for Microsoft Word are available in Short Paper Guidelines section https://istet.zut.edu.pl/EN/news/short-paper-guidelines.html

Authors of accepted and presented papers will be invited to submit a full paper considered for publication in the COMPEL journal (IF= 0.755).

For more information about the conference please refer to the ISTET 2022 webpage http://istet.zut.edu.pl/

We look forward to meeting all of You at the ISTET 2022.

Tomasz Chady (Chairman of the Organizing Committee) Przemyslaw Lopato, (Vice-Chairman of the Organizing Committee)

From: Rolf Clackdoyle <rolf.clackdoyle@univ-grenoble-alpes.fr>
Date: April 8, 2022
Subject: Mathematics Postdoc Fellowship Available; TIMC Laboratory, Grenoble, France

Field: Tomographic Reconstruction in SPECT / Reconstruction from Projections

Context: The ANR-funded project SPECT-Motion-eDCC is a collaborative research project between CREATIS (Lyon), TIMC (Grenoble), OHI(Ottawa), and LUMEN (Lyon). At TIMC, the main objective is to perform mathematical research on the question of range conditions (also known as data consistency conditions) for parallel and divergent projections, including the constant-attenuation exponential model. Exponential data consistency conditions (eDCCs) are already known for parallel projections [1], but not for divergent projections such as those measured by pinhole SPECT scanners. The role of eDCCs in this context is to test consistency of measured scanner data, as a method of detecting and identifying patient motion, and of verifying that correct motion compensation has been achieved [2].

Tasks: Under the guidance of Drs. Rolf Clackdoyle and Laurent Desbat, the postdoc will perform mathematical research on range conditions for the exponential x-ray transform (both in parallel and divergent formulations), carry out numerical verifications with small and large scale examples, and develop suitable cost functions and optimization code to search for transformations of the projections that minimize data inconsistency. In addition, there will be close collaborations with the CREATIS team (Lyon) and the OHI team (Ottawa) on implementation aspects of the eDCCs for patient motion identification.

Qualifications and Requirements:
• PhD in applied mathematics, or in physics or engineering with familiarity with functional analysis (at least the level of an undergraduate mathematics degree).
• Some programming skills and experience in Python, Matlab, C++, or similar tools.
• Solid written and spoken English skills are absolutely required; French optional.
• Scientific interest in medical imaging; preference for candidates with a background in tomographic reconstruction theory using analytic and/or iterative methods.

Practical Information:
• Primary supervision: Rolf Clackdoyle
• Location: TIMC laboratory, Grenoble, France.
• Period: two years, starting date flexible but not before June 2022.

• Potential candidates are welcome to make initial informal contact via email: rolf.clackdoyle@univ-grenoble-alpes.fr
• To apply: see https://urldefense.com/v3/__https://bit.ly/3r1qiVO__;!!HXCxUKc!mt58wuXSfI9DlDiVOvmOiH28BYxhbrfyZw5Vyd8PRk483jREhCK-hvSbGlZBVv7YktesQCY$ (in English and in French)
• Application deadline: we will start processing applications on Tuesday April 26, 2022, but the position will remain open until filled.

References:
[1] V.Aguilar, P.Kuchment. “Range conditions for the multidimensional exponential x-ray transform.” Inv Prob 11:977-982, 1995

[2] R.G.Wells, R.Clackdoyle. Feasibility of attenuation map alignment in pinhole cardiac SPECT using exponential data consistency conditions. Med Phys 48:4955–4965, 2021.

From: Dörte Mindermann <doertec@uni-bremen.de>
Date: Tuesday, April 12, 2022
Subject: 10 PhD positions in the Research Training Group 2224,“π3: Parameter Identification – Analysis, Algorithms, Applications”

10 PhD positions in the Research Training Group 2224,“π3: Parameter Identification – Analysis, Algorithms, Applications”

This research training group at the University of Bremen, funded by the German Science Foundation DFG, invites applications for
10 PhD positions (A106/22)
German federal employee scale TV-L E13, 75% of a full position,
for 3 years, starting October 1st, 2022.

The employment is fixed-term and governed by the Act of Academic Fixed-Term Contract, §2 I (Wissenschaftszeitvertragsgesetz – WissZeitVG). Therefore, candidates may only be considered for appointment if they still have the respective qualification periods available in accordance with § 2 (1) WissZeitVG.

The RTG π3 offers:
– Collaborative research projects between mathematicians of the Center for Industrial Mathematics, mathematicians in analysis, topology and statistics, and applied scientists.
– Research topics including inverse problems, direct optimisation, mathematical data analysis.
– A multifaceted qualification programme in applied mathematics and scientific computing, including research stays at partner institutions abroad, summer schools, and training workshops.

Requirements for PhD candidates:
– M.Sc. or equivalent degree with excellent grades in math sciences or

related fields.
- Experience in one of the research topics of this RTG.
- Skills in scientific computer programming.
- Industry or research internships are advantageous.
- Fluency in English.
- Applicants should enjoy working in an international and interdisciplinary team.

For detailed information please visit
http://www.math.uni-bremen.de/rtg-pi3/openpositions

The University of Bremen has received a number of awards for its gender and diversity policies and is particularly aiming to increase the number of female researchers. Gender equality will be given special emphasis within this research training group. Applications from female candidates, international applications and applications of academics with a migrant background are explicitly welcome. Disabled persons with the same professional and personal qualifications will be given preference.

Submitted by:
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