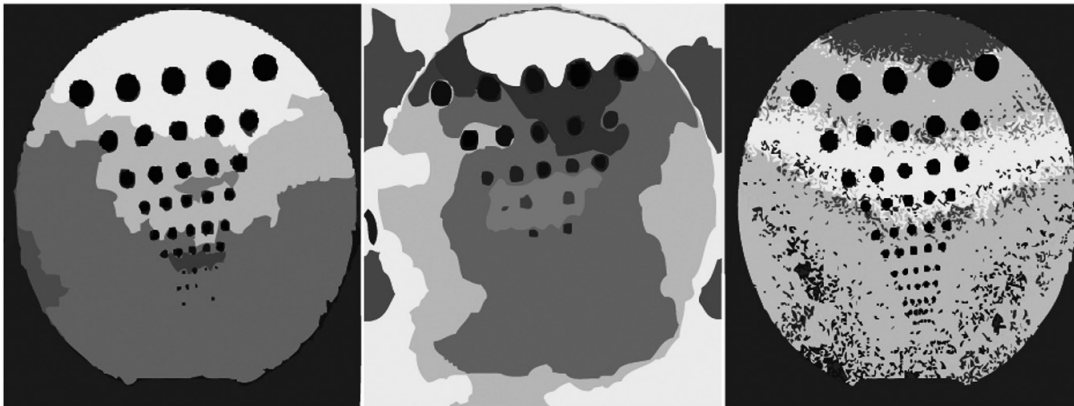


At-A-Glance

SIAM Conference on **IMAGING SCIENCE**



Tom Goldstein and Stanley Osher, SIAM J. Imaging Sciences, Vol.2, No.2

May 23 - 26, 2016

Hotel Albuquerque at Old Town
Albuquerque, New Mexico, USA



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2016 SIAM Conference on Imaging Science At-A-Glance

Sunday, May 22

5:00 PM - 8:00 PM

Registration
Fireplace Room

Monday, May 23

7:00 AM - 5:00 PM

Registration
Fireplace Room

8:00 AM - 8:15 AM

Welcoming Remarks
Alvarado Ballroom D and E

8:15 AM - 9:00 AM

IP1 Nonconformist Image Processing with the Graph Laplacian Operator
Peyman Milanfar, Google Research, USA
Alvarado Ballroom D and E

9:00 AM - 9:30 AM

Coffee Break
Alvarado Ballroom Atrium



9:30 AM - 11:30 AM

Concurrent Sessions

MT1 Applied Harmonic Analysis Methods in Imaging Science
Alvarado Ballroom D

MT2 Imaging Challenges of Modern Astronomy and Astrophysics
Alvarado Ballroom E

MT3 Data Representation: From Signal Processing to Machine Learning
Franciscan Ballroom

11:30 AM - 1:00 PM

Lunch Break
Attendees on their own

1:00 PM - 1:45 PM

IP2 High Resolution Tactile Sensing for Robotics, Metrology, and Medicine
Edward Adelson, Massachusetts Institute of Technology, USA
Alvarado Ballroom D and E

1:45 PM - 2:00 PM

Intermission

2:00 PM - 4:00 PM

Concurrent Sessions

MS1 Inversion of Non-linear Image Formation Models - Part I of II
Alvarado Ballroom D

MS2 Recent Advances in Convex Relaxations - Part I of II
Alvarado Ballroom E

MS3 Recent Advances in Dictionary Learning - Part I of II
Alvarado Ballroom A

MS4 Statistical Methods for Inverse Problems Involving Partial Differential Equations
Alvarado Ballroom B

MS5 Multi-Modality Imaging and Structural Priors - Part I of II
Alvarado Ballroom C

MS6 Image Segmentation, Classification and Applications - Part I of II
Alvarado Ballroom F

MS7 Computational Methods for Inverse Problems in Imaging
Alvarado Ballroom G

MS8 Non-Gaussian Noise: New Trends and Challenges - Part I of II
Alvarado Ballroom H

MS9 Efficient Algorithms for Large-scale Inverse Problems in Medical Imaging - Part I of II
Franciscan Ballroom

MS10 Image Analysis Advances in Dynamic Microscopy and Live Cell Imaging - Part I of II
Weavers Room

CP1 Image Formation
Potters Room

4:00 PM - 4:30 PM

Coffee Break
Alvarado Ballroom Atrium



4:30 PM - 6:30 PM

Concurrent Sessions

MS11 Inversion of Non-linear Image Formation Models - Part II of II
Alvarado Ballroom D

MS12 Recent Advances in Convex Relaxations - Part II of II
Alvarado Ballroom E

MS13 Recent Advances in Dictionary Learning - Part II of II
Alvarado Ballroom A

MS14 PDE-based Image Processing: Reconstruction, Filtering, Segmentation, Compression, and Inpainting
Alvarado Ballroom B

MS15 Multi-Modality Imaging and Structural Priors - Part II of II
Alvarado Ballroom C

MS16 Image Segmentation, Classification and Applications - Part II of II
Alvarado Ballroom F

MS17 Large-scale Optimization and Imaging Science
Alvarado Ballroom G

Monday, May 23

MS18 Non-Gaussian Noise: New Trends and Challenges - Part II of II
Alvarado Ballroom H

MS19 Efficient Algorithms for Large-scale Inverse Problems in Medical Imaging - Part II of II
Franciscan Ballroom

MS20 Image Analysis Advances in Dynamic Microscopy and Live Cell Imaging - Part II of II
Weavers Room

CP2 Optimization
Potters Room

6:30 PM - 8:30 PM

PP1 Welcome Reception and Poster Session
Alvarado Ballroom Atrium



Tuesday, May 24

7:45 AM - 5:00 PM

Registration
Fireplace Room

8:10 AM - 8:15 AM

Remarks
Alvarado Ballroom D and E

8:15 AM - 9:00 AM

IP3 Image Processing, Internet-of-Things, and Inverse Problems: Blind Deconvolution Meets Blind Demixing
Thomas Strohmer, University of California, Davis, USA
Alvarado Ballroom D and E

9:00 AM - 9:30 AM

Coffee Break
Alvarado Ballroom Atrium



9:30 AM - 11:30 AM

Concurrent Sessions

MS21 Recent Developments in Hybrid Inverse Problems and Imaging - Part I of III
Alvarado Ballroom D

MS22 Convex Signal Recovery from Pairwise Measurements
Alvarado Ballroom E

MS23 Topology and Geometry Across Scales - Part I of III
Alvarado Ballroom A

MS24 Leveraging Ideas from Imaging Science in PDE-constrained Optimization - Part I of III
Alvarado Ballroom B

2016 SIAM Conference on Imaging Science At-A-Glance

Tuesday, May 24

Tuesday, May 24

Tuesday, May 24

MS25 Statistical Modeling of High-Dimensional Brain Signals and Images

Alvarado Ballroom C

MS26 Recent Advances in Image Classification and Recognition

Alvarado Ballroom F

MS27 Parallel and Distributed Data Compression and Reconstruction in Imaging and High Performance Computing - Part I of II

Alvarado Ballroom G

MS28 Recent Developments in Image Reconstruction and Restoration - Part I of III

Alvarado Ballroom H

MS29 Addressing the Computational Challenge of Sparsity-regularized X-ray Tomography

Franciscan Ballroom

MS30 Computational Methods for Cryo-electron Microscopy Single Particle Reconstruction - Part I of III

Weavers Room

CP3 Low-rank Models

Potters Room

11:30 AM - 1:00 PM

Lunch Break

Attendees on their own

11:30 AM - 1:00 PM

SIAM Focus Group (by invitation only)

Turquoise

1:00 PM - 1:45 PM

SP1 SIAG/Imaging Science Early Career Prize Lecture - Revisiting Classical Problems of Image Processing: Looking for New Ways to Address Longstanding Problems

Mauricio Delbracio, Duke University, USA

Alvarado Ballroom D and E

1:45 PM - 2:00 PM

Intermission

2:00 PM - 4:00 PM

Concurrent Sessions

MS31 Recent Developments in Hybrid Inverse Problems and Imaging - Part II of III

Alvarado Ballroom D

MS32 Selected Papers from the SIAM Journal on Imaging Sciences - Part I of II

Alvarado Ballroom E

MS33 Topology and Geometry Across Scales - Part II of III

Alvarado Ballroom A

MS34 Leveraging Ideas from Imaging Science in PDE-constrained Optimization - Part II of III

Alvarado Ballroom B

MS35 Geometry-based Models in Image Processing - Part I of II

Alvarado Ballroom C

MS36 Spectral Methods for Nonlocal Diffusion and Segmentation

Alvarado Ballroom F

MS37 Parallel and Distributed Data Compression and Reconstruction in Imaging and High Performance Computing - Part II of II

Alvarado Ballroom G

MS38 Recent Developments in Image Reconstruction and Restoration - Part II of III

Alvarado Ballroom H

MS39 Limited-data Tomography - Part I of II

Franciscan Ballroom

MS40 Computational Methods for Cryo-electron Microscopy Single Particle Reconstruction - Part II of III

Weavers Room

CP4 Sparsity

Potters Room

4:00 PM - 4:30 PM

Coffee Break

Alvarado Ballroom Atrium



4:30 PM - 6:30 PM

Concurrent Sessions

MS41 Recent Developments in Hybrid Inverse Problems and Imaging - Part III of III

Alvarado Ballroom D

MS42 Selected Papers from the SIAM Journal on Imaging Sciences - Part II of II

Alvarado Ballroom E

MS43 Topology and Geometry Across Scales - Part III of III

Alvarado Ballroom A

MS44 Leveraging Ideas from Imaging Science in PDE-constrained Optimization - Part III of III

Alvarado Ballroom B

MS45 Geometry-based Models in Image Processing - Part II of II

Alvarado Ballroom C

MS46 Imaging in the Fast Lane: In Pursuit of Dynamical Information - Part I of II

Alvarado Ballroom F

MS47 Recent Developments in Image Reconstruction and Restoration - Part III of III

Alvarado Ballroom H

MS48 Limited-data Tomography - Part II of II

Franciscan Ballroom

MS49 Computational Methods for Cryo-electron Microscopy Single Particle Reconstruction - Part III of III

Weavers Room

MS65 The Never-Ending Story of Image Denoising - Part I of II

Alvarado Ballroom G

CP5 PDE-Based Methods

Potters Room

6:30 PM - 6:45 PM

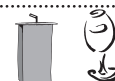
Intermission

6:45 PM - 7:30 PM

SIAG/IS Business Meeting

Alvarado Ballroom D

Complimentary beer and wine will be served.



Wednesday, May 25

7:45 AM - 5:00 PM

Registration

Fireplace Room

8:10 AM - 8:15 AM

Remarks

Alvarado Ballroom D and E

8:15 AM - 9:00 AM

IP4 Semantic Scene Parsing by Entropy Pursuit

Donald Geman, Johns Hopkins University, USA

Alvarado Ballroom D and E

9:00 AM - 9:30 AM

Coffee Break

Alvarado Ballroom Atrium



9:30 AM - 11:30 AM

Concurrent Sessions

MS50 Radar Detection and Imaging

Alvarado Ballroom D

MS51 Nonconvex Regularization in Imaging: Theory, Algorithms and Applications - Part I of III

Alvarado Ballroom E

MS52 Compressive and Computational Imaging Technologies and Applications - Part I of III

Alvarado Ballroom A

MS53 New Applications of the Eikonal Equation

Alvarado Ballroom B

MS54 Theoretical and Computational Aspects of Geometric Shape Analysis - Part I of III

Alvarado Ballroom C

MS55 Imaging in the Fast Lane: In Pursuit of Dynamical Information - Part II of II

Alvarado Ballroom F

MS56 Texture Modeling

Alvarado Ballroom G

2016 SIAM Conference on Imaging Science At-A-Glance

Wednesday, May 25

MS57 High Order Regularization and Numerical Methods
Alvarado Ballroom H
MS58 Optimization Theory in Medical Imaging
Franciscan Ballroom
MS59 Advances in Phase Retrieval for Diffractive Imaging
Weavers Room
CP6 Modeling
Potters Room

11:30 AM - 1:00 PM

Lunch Break
Attendees on their own

1:00 PM - 1:45 PM

SP2 SIAG/Imaging Science Best Paper Prize Lecture - Scale Invariant Geometry for Nonrigid Shapes
Dan Raviv, Massachusetts Institute of Technology, USA
Alvarado Ballroom D and E

1:45 PM - 2:00 PM

Intermission

2:00 PM - 4:00 PM

Concurrent Sessions

MS60 Recent Advances in Multi-model Approaches for Image Problems - Part I of II
Alvarado Ballroom D
MS61 Nonconvex Regularization in Imaging: Theory, Algorithms and Applications - Part II of III
Alvarado Ballroom E
MS62 Compressive and Computational Imaging Technologies and Applications - Part II of III
Alvarado Ballroom A
MS63 Nonlinear Mathematics of Electrical Impedance Imaging - Part I of II
Alvarado Ballroom B
MS64 Theoretical and Computational Aspects of Geometric Shape Analysis - Part II of III
Alvarado Ballroom C
MS65 See Tuesday 4:30
MS66 Big Data for Inverse Problems in Imaging - Part I of II
Alvarado Ballroom G
MS67 Parameter Selection in Image Reconstruction - Part I of II
Alvarado Ballroom H
MS68 New Statistical Developments in Neuroimaging
Franciscan Ballroom
CP7 Image Analysis
Potters Room

Wednesday, May 25

4:00 PM - 4:30 PM

Coffee Break
Alvarado Ballroom Atrium



4:30 PM - 6:30 PM

Concurrent Sessions

MS69 Recent Advances in Multi-model Approaches for Image Problems - Part II of II
Alvarado Ballroom D
MS70 Nonconvex Regularization in Imaging: Theory, Algorithms and Applications - Part III of III
Alvarado Ballroom E
MS71 Compressive and Computational Imaging Technologies and Applications - Part III of III
Alvarado Ballroom A
MS72 Nonlinear Mathematics of Electrical Impedance Imaging - Part II of II
Alvarado Ballroom B
MS73 Theoretical and Computational Aspects of Geometric Shape Analysis - Part III of III
Alvarado Ballroom C
MS74 The Never-Ending Story of Image Denoising - Part II of II
Alvarado Ballroom F
MS75 Big Data for Inverse Problems in Imaging - Part II of II
Alvarado Ballroom G
MS76 Parameter Selection in Image Reconstruction - Part II of II
Alvarado Ballroom H
MS77 Computational Methods for the Processing of Diffusion MRI Data and the Analysis of Brain Connectivity
Franciscan Ballroom
MS78 Multidimensional Mode Decomposition and Applications - Part I of III
Weavers Room
CP8 Computational Methods
Potters Room

7:00 PM - 9:00 PM

SIIMS Editorial Board Dinner Meeting
Turquoise

Thursday, May 26

7:45 AM - 2:30 PM

Registration
Fireplace Room

8:10 AM - 8:15 AM

Closing Remarks
Alvarado Ballroom D and E

8:15 AM - 9:00 AM

IP5 Recent Advances in Seismic Technology: From Imaging to Inversion
Uwe Albertin, Chevron Energy Technology Company, USA
Alvarado Ballroom D and E

9:00 AM - 9:30 AM

Coffee Break
Alvarado Ballroom Atrium



9:30 AM - 11:30 AM

Concurrent Sessions

MS79 Recent Developments and Challenges of Imaging Techniques in Geoscience
Alvarado Ballroom D
MS80 Non-Convex Regularization Methods in Image Restoration - Part I of II
Alvarado Ballroom E
MS81 Analysis and Parameterisation of Derivative Based Regularisation - Part I of II
Alvarado Ballroom A
MS82 Wave-based Imaging in Complex Media - Part I of II
Alvarado Ballroom B
MS83 Computational Imaging Systems
Alvarado Ballroom C
MS84 Imaging and Space Situational Awareness - Part I of II
Alvarado Ballroom F
MS85 Mathematical Techniques for Still Photography and Video - Part I of II
Alvarado Ballroom G
MS86 New Models for Image Restoration and Enhancement - Part I of II
Alvarado Ballroom H
MS87 Computational Methods in Multimodal Neuroimaging, Genetics, and Data Modeling
Franciscan Ballroom
MS88 Multidimensional Mode Decomposition and Applications - Part II of III
Weavers Room
CP9 Medical Imaging
Potters Room

11:30 AM - 1:00 PM

Lunch Break
Attendees on their own

Thursday, May 26

1:00 PM - 1:45 PM

IP6 Event-Based Silicon Retina Technology
Tobi Delbruck, University of Zurich and ETH
Zurich, Switzerland
Alvarado Ballroom D and E

1:45 PM - 2:00 PM

Intermission

2:00 PM - 4:00 PM

Concurrent Sessions

MS89 Non-Convex Regularization Methods in
Image Restoration - Part II of II

Alvarado Ballroom E

MS90 Analysis and Parameterisation of
Derivative Based Regularisation - Part II of II

Alvarado Ballroom A

MS91 Wave-based Imaging in Complex
Media - Part II of II

Alvarado Ballroom B

MS92 Splitting Methods and Their
Applications in Computational Imaging

Alvarado Ballroom C

MS93 Imaging and Space Situational
Awareness - Part II of II

Alvarado Ballroom F

MS94 Mathematical Techniques for Still
Photography and Video - Part II of II

Alvarado Ballroom G

MS95 New Models for Image Restoration and
Enhancement - Part II of II

Alvarado Ballroom H

MS96 Inverse Problems in Neuroimaging

Alvarado Ballroom D

MS97 Multidimensional Mode Decomposition
and Applications - Part III of III

Weavers Room

CP10 Registration, Denoising, Super-
Resolution

Franciscan Ballroom

CP11 Microscopy and Geosciences

Potters Room

Key to abbreviations and symbols



= Business Meeting



= Coffee Break



= Refreshments Served

IP

= Invited Plenary Speaker

CP

= Contributed Presentation

MS

= Minisymposium

PP

= Poster Session

SP

= Special Lecture

SIAM Titles of Interest to ISI6 Attendees

These and other SIAM books are available at the conference

Conference attendees receive discounts on all displayed titles.



Elliptic Problems in Nonsmooth Domains

Pierre Grisvard

Classics in Applied Mathematics 69

This classic text focuses on elliptic boundary value problems in domains with nonsmooth boundaries and on problems with mixed boundary conditions. Its contents are essential for an understanding of the behavior of numerical methods for PDEs on two-dimensional domains with corners. It provides a careful and self-contained development of Sobolev spaces on nonsmooth domains and addresses fourth-order boundary value problems and numerical treatment of singularities.

2011 • xiv + 410 • Softcover • 978-1-611972-02-3 • List \$102.00 • Attendee \$81.60 • Member \$71.40 • CL69

Computational Methods in Geophysical Electromagnetics

Eldad Haber

Mathematics in Industry 01

This monograph provides a framework for students and practitioners who are working on the solution of electromagnetic imaging in geophysics. Bridging the gap between theory and practical applied material (for example, inverse and forward problems), it provides a simple explanation of finite volume discretization, basic concepts in solving inverse problems through optimization, a summary of applied electromagnetics methods, and MATLAB® code for efficient computation.

2014 • viii + 143 pages • Softcover • 978-1-611973-79-2 • List \$65.00 • Attendee \$52.00 • Member \$45.50 • MN01

Deblurring Images: Matrices, Spectra, and Filtering

Per Christian Hansen, James G. Nagy, and Dianne P. O'Leary

Fundamentals of Algorithms 3

This book's treatment of image deblurring is unique in two ways: it includes algorithmic and implementation details; and by keeping the formulations in terms of matrices, vectors, and matrix computations, it makes the material accessible to a wide range of readers. Students and researchers in engineering will gain an understanding of the linear algebra behind filtering methods, while readers in applied mathematics, numerical analysis, and computational science will be exposed to modern techniques to solve realistic large-scale problems in image processing.

2006 • xiv + 130 pages • Softcover • 978-0-898716-18-4 • List \$73.00 • Attendee \$58.40 • Member \$51.10 • FA03

Mathematical Methods in Image Reconstruction

Frank Natterer and Frank Wübbeling

Mathematical Modeling and Computation 5

The authors survey and provide a unified view of imaging techniques, provide the necessary mathematical background and common framework, and give a detailed analysis of the numerical algorithms. This book not only reflects the theoretical progress and the growth of the field but also serves as an excellent reference. It will provide readers with a superior understanding of the mathematical principles behind imaging.

2001 • xii + 216 pages • Softcover • 978-0-898716-22-1 • List \$93.00 • Attendee \$74.40 • Member \$65.10 • MM05

Image Processing and Analysis:

Variational, PDE, Wavelet, and Stochastic Methods

Tony F. Chan and Jianhong (Jackie) Shen

This book develops the mathematical foundation of modern image processing and low-level computer vision, and presents a general framework from the analysis of image structures and patterns to their processing. The core mathematical and computational ingredients of several important image processing tasks are investigated. The book bridges contemporary mathematics with state-of-the-art methodologies in modern image processing while organizing the vast contemporary literature into a coherent and logical structure.

2005 • xxii + 400 pages • Softcover • 978-0-898715-89-7 • List \$86.50 • Attendee \$69.20 • Member \$60.55 • OT94

The Shapes of Things: A Practical Guide to Differential Geometry and the Shape Derivative

Shawn W. Walker

Advances in Design and Control 28

This self-contained overview of differential geometry explains how to differentiate a function (in the calculus sense) with respect to a "shape variable." This approach, which is useful for understanding mathematical models containing geometric partial differential equations, allows readers to obtain formulas for geometric quantities (such as curvature) that are clearer than those usually offered in differential geometry texts.

2015 • x + 152 pages • Softcover • 978-1-611973-95-2 • List \$74.00 • Attendee \$59.20 • Member \$51.80 • DC28

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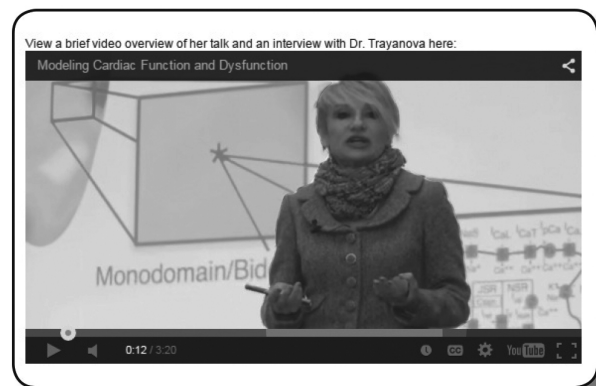
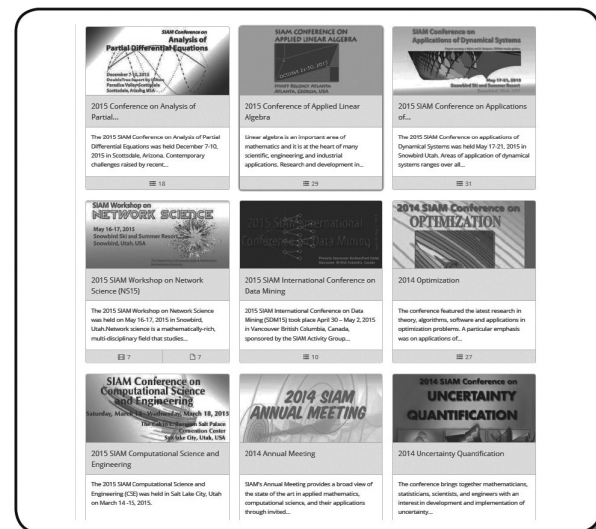
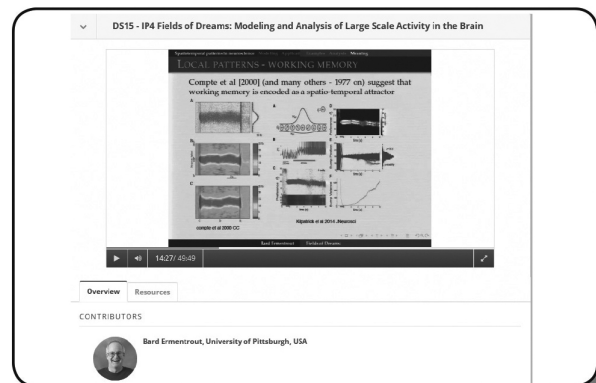
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- optimization
- uncertainty quantification and more...

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Plans for adding more content are on the horizon. Keep an eye out!

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