RENÉ VIDAL

Center for Imaging Science
Department of Biomedical Engineering
Johns Hopkins University

302B Clark Hall, 3400 N. Charles Street, Baltimore, MD 21218
Phone: (410) 516-7306, Fax: (410) 516-4594
E-mail: rvidal@jhu.edu, Web: http://www.vision.jhu.edu

EDUCATION

PhD in Electrical Engineering and Computer Science, University of California at Berkeley, 2003

- **Thesis:** Generalized Principal Component Analysis (GPCA): an Algebraic Geometric Approach to Subspace Clustering and Motion Segmentation
- **Advisor:** Shankar Sastry
- **Award:** 2003 Eli Jury Award for "outstanding achievement in the area of Systems, Communications, Control or Signal Processing"
- **Award:** 2004 Sakrison Memorial Prize for "completing an exceptionally documented piece of research"

MS in Electrical Engineering and Computer Science, University of California at Berkeley, 2000

- **Thesis:** Controlled Invariance of Discrete Time Hybrid Systems
- **Advisor:** Shankar Sastry

MS in Engineering with major in Automatic Control, Catholic University of Chile, 1997

- **Thesis:** Control of a Robot Arm using Fuzzy Logic and Image Processing
- **Advisor:** Aldo Cipriano
- **Award:** Dow Chemical Company Prize to the Valedictorian of the MS program

Diploma in Industrial Engineering with major in Electricity, Catholic University of Chile, 1997

- Summa Cum Laude
- Award to the Valedictorian of the School of Engineering
- Award to the Valedictorian of the Department of Electrical Engineering

B.S. in Industrial Engineering with major in Electricity, Catholic University of Chile, 1995

- Summa Cum Laude
- Award to the Valedictorian of the School of Engineering
- Award to the Valedictorian of the Department of Electrical Engineering

PROFESSIONAL EXPERIENCE

Full Professor

- Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD (2015 – present)
- Secondary Appointment in the Departments of Computer Science, Electrical and Computer Engineering, and Mechanical Engineering, Johns Hopkins University, (2015 – present)
- Faculty member in the Center for Imaging Science (CIS)
- Faculty member in the Institute for Computational Medicine (ICM)

- Faculty member in the Laboratory for Computational Sensing and Robotics (LCSR)

Associate Professor

- Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD (2010 – 2015)
- Secondary Appointment in the Departments of Computer Science, Electrical and Computer Engineering, and Mechanical Engineering, Johns Hopkins University, (2010 – 2015)
- Faculty member in the Center for Imaging Science (CIS)
- Faculty member in the Institute for Computational Medicine (ICM)
- Faculty member in the Laboratory for Computational Sensing and Robotics (LCSR)

Assistant Professor

- Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD (2004 – 2010)
- Secondary Appointment in the Department of Electrical and Computer Engineering, Johns Hopkins University, (2006 – 2010)
- Secondary Appointment in the Department of Computer Science and Mechanical Engineering, Johns Hopkins University, Baltimore, MD (2004 – 2010)

Visiting Professor

- Math Department, Stanford University (November 2012)
- Computer Science Department, INRIA, Paris, France (May-October 2012)
- Computer Science Department, Catholic University, Santiago, Chile, (January-March 2012)
- Grupo de Visió per Computador i Robótica, Universitat de Girona, Girona, Spain (March 2010)
- Grupo de Visió per Computador i Robótica, Universitat de Girona, Girona, Spain (May 2009)
- Centre de Recherche en Automatique, Université Henri Poincaré, Nancy, France (October 2008)
- Department of Information Engineering, Research School of Information, Science and Engineering, Australian National University, Canberra, Australia (November 2007)
- School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, UK (December 2006 – January 2007)
- National ICT Australia and Research School of Information, Science and Engineering, Australian National University, Canberra, Australia (January 2005)

Research Fellow

- National ICT Australia, Canberra, Australia (Fall 2003)

Research Assistant

- Department of Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA (1999-2003)

Research Intern

- RIACS NASA Ames, Moffet Field, CA (Summer 2002)
- NEC Research Institute, Princeton, NJ (Summer 2001)

Engineer

- DICTUC S.A., Santiago, Chile (1997-1998)

ACADEMIC HONORS

Prizes and Awards

- Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition, 2015
- IEEE Fellow, 2014
- Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition, 2013

- Best Paper Award for paper entitled “Efficient Object Localization and Pose Estimation with 3D Wireframe Models," IEEE Workshop on 3D Representation and Recognition, 2013
- Best Paper Award for paper entitled “Joint Dictionary Learning for Categorization of Images using a Max-Margin Framework”, Pacific-Rim Symposium on Image and Video Technology, 2013
- Best Paper Award for paper entitled "Intrinsic Consensus on SO(3) with Almost-Global Convergence," IEEE Conference on Decision and Control, 2012
- J. K. Aggarwal Prize "for outstanding contributions to generalized principal component analysis (GPCA) and subspace clustering in computer vision and pattern recognition," 2012
- Best Paper Award in Medical Robotics and Computer Assisted Interventions for paper entitled “Surgical Gesture Classification from Video Data”, MICCAI 2012
- Best Paper Award Runner Up for paper entitled “*Average Consensus on Riemannian Manifolds with Bounded Curvature”,* 50th IEEE Conference on Decision and Control, 2011
- General Chairs’ Recognition Award for Interactive Papers at the 48th IEEE Conference on Decision and Control, 2009
- Outstanding Reviewer Award, IEEE International Conference on Computer Vision, 2009
- Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition, 2009
- Young Investigator Award, Office of Naval Research, 2009
- Sloan Research Fellowship, Alfred P. Sloan Foundation, 2009
- Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition, 2008
- VIBOT Fellowship in Vision and Robotics, 2006-2007
- NSF CAREER Award, “*Recognition of Dynamic Activities in Unstructured Environments*”, National Science Foundation, 2005
- Best Paper Award Honorable Mention (with Y. Ma.) for paper entitled “*A Unified Algebraic Approach to 2-D and 3-D Motion Segmentation,”* European Conference on Computer Vision, 2004
- Sakrison Memorial Prize for “*completing an exceptionally documented piece of research*", University of California at Berkeley, 2004
- Eliahu Jury Award for “*outstanding achievement in the area of Systems, Communications, Control, or Signal Processing*", University of California at Berkeley, 2003
- SSRP Continuation Award, NASA Ames, 2002
- Marcos Orrego Puelma Award, Institute of Engineers of Chile, 1998
- Dow Chemical Company Prize to Valedictorian of M.Eng. Program, Catholic University of Chile, 1997
- Valedictorian of the School of Engineering, Catholic University of Chile, 1991-1996

Fellowships and Scholarships

- Regent's Fellowship, University of California at Berkeley, 1998-99
- President of the Republic of Chile Scholarship, 1989-96
- Honor Scholarship, Catholic University of Chile, 1994-96
- Conicyt Scholarship, Chilean National Commission for Research and Technology, 1996-97
- Juan Pablo II Scholarship, 1994-96
- Délano Foundation Scholarship, 1992-97
- Foundation of Engineers Scholarship, Catholic University of Chile, 1991-93

Honors

- Tau-Beta-Pi Honor Society, 2008-present
- Distinguished Citizen, Council of the City of Lautaro, Chile, 2004

RESEARCH INTERESTS

Machine Learning

- Large scale optimization
- Representation learning: mathematics of deep learning, tensor factorization, matrix factorization, matrix completion, sparse, block sparse and low-rank representations
- Manifold learning and clustering: generalized principal component analysis (GPCA), sparse subspace clustering (SSC), low rank subspace clustering (LRSC), locally linear manifold clustering (LLMC), sparse manifold clustering and embedding (SMCE)
- Classification of time series: Binet-Cauchy kernels, DynamicBoost, Align distance

Computer Vision

- Image analysis: object recognition, semantic image segmentation, 3D object detection, pose estimation and recognition
- Video analysis: activity recognition, video summarization, semantic video segmentation, dynamic texture segmentation and recognition, motion/video segmentation
- Camera sensor networks: calibration, 3D reconstruction, surveillance
- 3D scene analysis: nonrigid structure from motion, multiple view geometry, optimal motion estimation and 3-D reconstruction, camera self-calibration, omnidirectional vision

Biomedical Image Analysis

- Analysis of human movements for rehabilitation therapy
- Modeling and recognition of surgical gestures and skill
- Analysis of high angular resolution diffusion images (HARDI)
- Classification of stem-cell derived cardiac myocytes
- Interactive medical image segmentation

Signal Processing

- Consensus on manifolds
- Distributed optimization

Dynamical Systems and Control

- Distances on spaces of dynamical systems
- Observability, realization and identification of hybrid systems
- Computation of controlled invariant sets using semi-definite programming
- Decidability analysis of the controlled invariance problem for discrete-time hybrid systems

Robotics

- Formation control of teams of non-holonomic robots
- Coordination and control of multiple autonomous vehicles for pursuit-evasion games
- Multiple view motion estimation and control for landing an unmanned aerial vehicle

TEACHING EXPERIENCE

Course Instructor

- Advanced Topics in Machine Learning, Johns Hopkins University, Fall 2006, Spring 2010, Spring 2014, Spring 2016
- Computer Vision, Johns Hopkins University, Spring 2008, Fall 2013, Fall 2014

- Freshmen Modeling and Design, Johns Hopkins University, Fall 2006-2011, Fall 2013-present
- Biomedical Signal, Systems and Control, Johns Hopkins University, Spring 2006-2011
- Introduction to Linear Dynamical Systems, Johns Hopkins University, Spring 2007
- Advanced Topics on Computer Vision, Johns Hopkins University, Spring 2005, 2009
- Advanced Topics on Computer Vision and Robotics, UC Berkeley, Spring 2003
- Digital Signal Processing, San Francisco State University, Fall 2000
- Linear Algebra, Polytechnic Military Academy of Chile, Fall 1997

Teaching Assistant

- Calculus I, II, III, and Linear Algebra, Polytechnic Military Academy, 1996-1997
- Department of Electrical Engineering, Catholic University of Chile, 1996-1997
- Departments of Mathematics and Physics, Catholic University of Chile, 1992-1996

PROFESSIONAL ACTIVITIES

Award Committees

- Chair J.K Aggarwal Prize Committee (2016)
- Member J.K. Aggarwal Prize Committee (2014)

Associate Editor

- International Journal of Computer Vision, Special Issue on Best Papers from ICCV 2015 (2016)
- Medical Image Analysis (2015-present)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (2012-present)
- SIAM Journal on Imaging Sciences (2011-present)
- IEEE Transactions on Pattern Analysis and Machine Intelligence, Special Issue on Best Papers from CVPR 2014 (2014-2016)
- Journal of Mathematical Imaging and Vision (2008-2013)
- IEEE Signal Processing Magazine, Special Issue on Dimensionality Reduction via Subspace and Manifold Learning (2009-2010)
- IEEE International Conference on Decision and Control (2008)
- 6th IFAC Symposium on Robust Control Design (2009, 2012)

Program Chair

- IEEE International Conference on Computer Vision (2015)
- IEEE Conference on Computer Vision and Pattern Recognition (2014)
- IEEE Workshop on Vision and Motion Computing (2009)
- IEEE Pacific-Rim Symposium on Image and Video Technology (2007)

Area Chair

- Association for the Advancement of Artificial Intelligence (AAAI) Conference (2016)
- Neural Information Processing Systems (2015)
- Medical Image Computing and Computed Assisted Interventions (2013, 2014)
- IEEE International Conference on Computer Vision (2007, 2011, 2013)
- IEEE Conference on Computer Vision and Pattern Recognition (2005, 2013)
- Scandinavian Conference on Image Analysis (2011)

Program Committee Member

- IEEE International Conference on Computer Vision (2005, 2009, 2013), European Conference on Computer Vision (2004, 2006, 2008, 2010, 2014), IEEE Conference on Computer Vision and Pattern Recognition (2004, 2006-2009, 2013-2016), Asian Conference on Computer Vision (2007), International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (2009, 2011, 2013, 2015)
- NIPS: Neural Information Processing Systems (2005, 2011, 2013, 2014, 2016), International Conference on Machine Learning (2006, 2014), European Conference on Machine Learning (2006)
- CVPR Workshop on Nonrigid Object Recognition and Deformable Image Registration (2008), CVPR Workshop on Advanced 3D Imaging for Safety and Security (2005), International Symposium on 3D Data Processing, Visualization and Transmission (2006), Workshop on Image Registration in Deformable Environments (2006), Biomedical Engineering Symposium (2008), CVPR Workshop on Camera Networks (2010), MICCAI Workshop on Medical Computer Vision: Recognition Techniques and Applications in Medical Imaging (2010), AAAI 2010 Fall Symposium on Manifold Learning and its Applications (2010), Scandinavian Conference on Image Analysis (2011)

Workshop, Tutorial and Course Organizer

- Tutorial on the Mathematics of Deep Learning, IEEE Conference on Computer Vision and Pattern Recognition, Las Vegas, NV, USA (2016)
- Tutorial on the Mathematics of Deep Learning, IEEE International Conference on Computer Vision, Santiago, Chile (2015)
- Tutorial on Learning Multi-Subspaces in Computer Vision, IEEE Conference on Computer Vision and Pattern Recognition, Boston, MA, USA (2015)
- Tutorial on Learning Multi-Subspaces in Computer Vision, IEEE Conference on Computer Vision and Pattern Recognition, San Francisco, CA, USA (2010)
- Workshop on Dynamical Vision, IEEE International Conference on Computer Vision, Kyoto, Japan (2009)
- Invited Session on Identification of Hybrid Systems, Workshop on System Identification, Saint Malo, France (2009)
- Course on Generalized Principal Component Analysis (GPCA), IEEE Conference on Computer Vision and Pattern Recognition, Anchorage, AL, USA (2008)
- Workshop on Hybrid System Identification via Generalized Principal Component Analysis, IEEE Conference on Decision and Control, New Orleans, LA, USA (2007)
- Workshop on Dynamical Vision, IEEE International Conference on Computer Vision, Rio de Janeiro, Brazil (2007)
- Workshop on Computer Vision for Developing Regions, IEEE International Conference on Computer Vision, Rio de Janeiro, Brazil (2007)
- Course on Identification of Hybrid Systems, European Control Conference, Kos, Greece (2007)
- Course on Generalized Principal Component Analysis (GPCA), IEEE Conference on Computer Vision and Pattern Recognition, Minneapolis, MN, USA (2007)
- Workshop on Dynamical Vision, European Conference on Computer Vision, Graz, Austria (2006)
- Workshop on Dynamical Vision, IEEE International Conference on Computer Vision, Beijing, China (2005)
- Tutorial on Multiple-View Geometry for Image-Based Modeling, IEEE International Conference on Image Processing, Genoa, Italy (2005)
- Course on Generalized Principal Component Analysis (GPCA): Theory and Applications in Vision & Control, Catholic University, Santiago, Chile (2004)
- Invited Session on Observability, Observer Design and Identification of Hybrid Systems, IEEE Conference on Decision and Control, Nassau, Bahamas (2004)

- Tutorial on 3D Reconstruction and Motion Analysis of Static and Dynamic Scenes, IEEE International Conference on Robotics and Automation, New Orleans, USA (2004)
- Course on Multiple-View Geometry for Image-Based Modeling, SIGGRAPH, Los Angeles, USA (2003,2004)

Grant Review Panels

- NOIT, National Institute of Health, 2016
- Dynamic Data, National Science Foundation, 2014
- Austrian Science Fund, STAR Project, 2013
- Chilean Corporation for Science and Technology (Conicyt), 2012
- CAREER Award Panel, Computer Vision, National Science Foundation, 2012
- Austrian Science Fund, STAR Project, 2012
- Chilean Corporation for Science and Technology (Conicyt), 2011
- Cyber Physical Systems Panel, National Science Foundation, 2011
- Chilean Corporation for Science and Technology (Conicyt), 2010
- Research Grants Council (RGC) of Hong Kong, 2010
- Computer Vision Panel, National Science Foundation 2010
- Chilean Corporation for Science and Technology (Conicyt), 2009
- German Israeli Foundation, 2009
- Expeditions in Computing Panel, National Science Foundation, 2008
- Software for Real-world Systems (SRS), National Science Foundation, 2008
- CAREER Award Panel, Power Control and Adaptive Networks, National Science Foundation, 2007
- CAREER Award Panel, Computer Vision, National Science Foundation, 2007

Journal Reviewer

- **Biomedical Image Analysis and Computational Biology:** IEEE Transactions on Medical Imaging, Medical Image Analysis, PLoS Computational Biology, Computers in Biology and Medicine
- **Computer Vision and Image Processing:** International Journal of Computer Vision, IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding, Image and Video Computing, Journal of Mathematical Imaging and Vision, IEEE Transactions on Image Processing, IET Image Processing, Journal of Electronic Imaging
- **Machine Learning:** Journal of Machine Learning Research, Pattern Recognition Letters, Neurocomputing, Pattern Recognition, IEEE Transactions on Neural Networks, IEEE Transactions on Neural Networks and Learning Systems, Journal of Classification, Pattern Analysis and Applications Journal, International Journal on Pattern Recognition and Artificial Intelligence, Engineering Applications of Artificial Intelligence, Data and Knowledge Engineering, Computational Statistics and Data Analysis, Journal of Pattern Recognition
- **Dynamical Systems and Control:** IEEE Transactions on Automatic Control, Automatica, System and Control Letters, IEEE Transaction on Control Applications and Systems, Asian Journal of Control, Control Engineering Practice
- **Robotics:** IEEE Transactions on Robotics, Robotics and Autonomous Systems, IEEE Transactions on Sensor Networks
- **Signal Processing and Information Theory:** IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE Signal Processing Letters, Signal Processing, Multidimensional Systems and Signal Processing, Journal of Fourier Analysis and Applications
- **Neuroscience:** Neuroscience Letters
- **Mathematics:** Foundations of Computational Mathematics

Conference Reviewer

- **Computer Vision and Image Processing:** International Conference on Computer Vision (2003, 2005, 2007, 2009), European Conference on Computer Vision (2002, 2004, 2006, 2008, 2014), IEEE Conference on Computer Vision and Pattern Recognition (2003-2009, 2015)
- **Machine Learning:** NIPS: Neural Information Processing Systems (2005, 2012, 2014), International Conference on Machine Learning (2006,2013), European Conference on Machine Learning (2006)
- **Dynamical Systems and Control:** European Control Conference (2006-2007), IEEE Conference on Decision and Control (2000-2007), Workshop on Hybrid Systems Computation and Control (2000-2003, 2008), IEEE American Control Conference (2002-2004, 2007), IFAC Symposium on System Identification (2006)
- **Robotics:** IEEE International Conference on Robotics and Automation (2006), IEEE International Conference on Intelligent Robots and Systems (2005)

SEMINARS AND INVITED TALKS

Distinguished Lectures and Keynote Speeches

1. Algebraic, Sparse and Low Rank Subspace Clustering. Plenary Lecture, Iberoamerican Congress on Pattern Recognition, Montevideo, Uruguay, November 2015
2. Algebraic, Sparse and Low Rank Subspace Clustering. Plenary Lecture, Symposium on Signal and Image Processing, and Computer Vision, Bogotá, Colombia, September 2015
3. Algebraic, Sparse and Low Rank Subspace Clustering. Plenary Lecture, 1st Annual Workshop on Data Sciences, Tennessee State University, April 2015
4. Algebraic, Sparse and Low Rank Subspace Clustering. International Conference on Intelligence Science and Big Data Engineering, Beijing, China, July 2013
5. *Subspace Clustering*, J.K. Aggarwal Prize Plenary Lecture, International Conference on Pattern Recognition, Tsukuba, Japan, 2012
6. *Global Bag of Latent Features Models for Semantic Segmentation*, Keynote Speech, ECCV Workshop on Higher-Order Models and Global Constraints in Computer Vision, Florence, Italy, 2012
7. *Distributed Algorithms for Camera Sensor Networks*, Keynote Speech, CVPR Workshop on Camera Networks and Wide Area Scene Analysis, Colorado Springs, USA, 2011
8. Keynote Speaker at the Symposium for Underrepresented Undergraduates, Johns Hopkins University, 2010
9. *Multi-Manifold Learning*. AAAI 2009 Fall Symposium on Manifold Learning and its Applications, Arlington, VA, November 2009
10. *Binet-Cauchy Kernels for the Recognition of Visual Dynamical Processes.* Plenary Lecture, Benelux meeting in Systems and Control, Spa, Belgium, March 2009
11. *Generalized Principal Component Analysis (GPCA).* Keynote Speech, Workshop on Image Processing, Guanajuato, Mexico, August 2007
12. *Segmentation of Dynamic Scenes and Textures.* Keynote Speech, Workshop on Computational Vision, Robotics, Neurocontrol and Medical Image Processing, Guadalajara, Mexico, June 2006
13. *Segmentation of Dynamic Scenes and Textures.* Keynote Speech, Workshop on Statistical Methods in Multi-Image and Video Processing (SMVP), May 2006
14. *Toward Dynamic GPCA: Hybrid System Identification for the Analysis of Dynamic Scenes.* Sundaram Seshu Scholar Lecture, University of Illinois at Urbana Champaign, November 2005

Invited Talks at Workshops, Tutorials and Summer Schools

15. Global Optimality in Matrix and Tensor Factorization, Deep Learning, and Beyond, IMA Workshop on Optimization and Parsimonious Modeling, January 2016

16. Globally Optimal Structured Low-Rank Matrix and Tensor Factorization, ICCV Workshop on Robust Subspace Learning and Computer Vision, December 2015
17. Object Detection, Pose Estimation and Semantic Segmentation Using 3D Wireframe Models, ICCV Workshop on 3D Scene Understanding, December 2015
18. Subspace Arrangements in Vision and Learning, Meeting on Algebraic Vision, October 2015
19. Algebraic, Sparse and Low Rank Subspace Clustering, International Computer Vision Summer School, July 2015
20. Globally Optimal Factorizations and Deep Learning, Symposium on Data Science, ShanghaiTech, June 2015
21. Discovering the Language of Surgery, CVPR Workshop on Medical Computer Vision, June 2015
22. Globally Optimal Factorizations and Deep Learning, KAUST, March 2015
23. Semantic (less) Motion and Video Segmentation, First International Workshop on Video Segmentation, European Conference in Computer Vision, September 2014
24. Algebraic, Sparse and Low Rank Subspace Clustering. Mathematical Image Analysis, Paris, January 2014
25. Computer Vision Methods in Surgery and Neuroimaging. 3rd Annual Hopkins Imaging Conference, Johns Hopkins University, November 2013
26. See All by Looking at A Few: Sparse Modeling for Finding Data Exemplars. Computer Vision Workshop, Oxford University, Oxford UK, August 2013
27. See All by Looking at A Few: Sparse Modeling for Finding Data Exemplars. Duke Workshop on Sensing and Analysis of High-Dimensional Data, Duke University, July 2013
28. Discovering the Language of Surgery. MICCAI Workshop, Tokyo University, Tokyo, Japan, May 2013
29. Discovering the Language of Surgery. Computer Vision Workshop, University of Southern California, February 2013
30. Subspace Sparsity for Classification and Clustering of High-Dimensional Data. International Workshop on Computer Vision, Siracusa, Italy, May 2012
31. *Sparsity and Rank Minimization in Unions of Subspaces*. Workshop on Sensing and Analysis of High-Dimensional Data (SAHD), Duke University, July 2011
32. *Structured Sparsity for Subspace Classification and Clustering*. Workshop on the Geometry of High Dimensional Data, Department of Mathematics, Vanderbilt University, May, 2011
33. *Segmentation and Categorization of Dynamic Scenes*. Cotesys Spring Workshop, Technical University of Munich, April 2011
34. *Processing High Angular Resolution Diffusion Images of the Brain*. Workshop on What Can Computer Vision Do for Neuroscience and Vice Versa? Janelia Farm Campus, Howard Hughes Medical Institute, October 2010
35. *Subspace Clustering*. Shanks Workshop on "Machine learning and the Analysis of High Dimensional data sets", Department of Mathematics, Vanderbilt University, September, 2010
36. *Multi-Subspace Learning and Clustering via Sparse Representation*, Tutorial on Learning Multi-Subspaces in Computer Vision, IEEE Conference on Computer Vision and Pattern Recognition, San Francisco, CA, USA, June 2010
37. *Sparse Subspace Clustering.* Forum on Geometric Aspects of Machine Learning and Visual Analytics: Recent Developments and Future Challenges*, Atlantic City, NJ, October 2009*
38. *Sparse Subspace Clustering.* Research in Imaging Sciences Workshop, Minneapolis, MN, October 2009
39. *Clustering Linear and Nonlinear Manifolds. Workshop on Multi-Manifold Data Modeling and Applications*, Minneapolis, MN, October 2008
40. *Segmentation and Fiber Clustering in Diffusion Tensor Images*. Workshop on What Can Computer Vision Do for Neuroscience and Vice Versa? Janelia Farm Campus, Howard Hughes Medical Institute, September 2008

41. *Clustering Linear and Nonlinear Manifolds using Generalized Principal Components Analysis*, Minisymposium on Hybrid Linear and Nonlinear Modeling and their Applications, San Diego CA, USA, July 2008
42. Generalized Principal Component Analysis (GPCA), Workshop on Optimization on Manifolds, Conference on Decision and Control, New Orleans LA, USA, December 2007
43. *An Algebraic Geometric Approach to Hybrid System Identification,* Workshop on Hybrid System Identification via Generalized Principal Component Analysis, Conference on Decision and Control, New Orleans LA, USA, December 2007
44. *Generalized Principal Component Analysis (GPCA).* Summer Workshop on Language and Speech Processing, Johns Hopkins University, July 2007
45. *An Algebraic Geometric Approach to Hybrid System Identification,* Workshop on Identification of Hybrid Systems, European Control Conference, Kos, Greece, July 2007
46. Generalized Principal Component Analysis (GPCA), Tutorial at the IEEE Conference on Computer Vision and Pattern Recognition, Minneapolis, USA, June 2007
47. *Segmentation of Dynamic Scenes and Textures.* BIRS Workshop on Mathematical Methods in Computer Vision, Banff, Canada, October 2006
48. *An Algebraic Geometric Approach to Hybrid System Identification,* Workshop on Identification of Hybrid Systems, IEEE Conference on Decision and Control, Seville, Spain, December 2005
49. *Generalized Principal Component Analysis (GPCA)*, Machine Learning Summer School, Canberra, Australia, January 2005
50. *Generalized Principal Component Analysis (GPCA)*. Catholic University of Chile, December 2004
51. *Segmentation of Dynamic Scenes via Generalized Principal Component Analysis*, Workshop on Mathematics and Image Analysis, Paris, France, September 2004
52. *Reconstruction of Dynamic Scenes*, Workshop on Imaging Beyond the Pinhole Camera, Dagstuhl, Germany, June 2004
53. Tutorial on *Breakthroughs in 3D Reconstruction and Motion Analysis*, IEEE International Conference on Robotics and Automation, New Orleans, May 2003

Invited Talks at Departmental Seminars

1. Automatic Methods for the Interpretation of Visual Data, National Institute of Standards and Technology, January 2015
2. Algebraic, Sparse and Low Rank Subspace Clustering. Department of Electrical Engineering, Boston University, October 2015
3. Automatic Methods for the Interpretation of Visual Data, Quantitative Sciences Seminar, Division of Biostatistics and Bioinformatics, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University, October 2015
4. Automatic Methods for the Interpretation of Visual Data, Computational Neuroscience, Brain Science Institute, Johns Hopkins University, April 2015
5. See All by Looking at A Few: Sparse Modeling for Finding Data Exemplars. Department of Machine Intelligence, Peking University, October 2014
6. See All by Looking at A Few: Sparse Modeling for Finding Data Exemplars. Department of Computer Science, Shanghai Tech, October 2014
7. Algebraic, Sparse and Low Rank Subspace Clustering. Department of Computer Science, Catholic University, Chile, July 2014
8. Algebraic, Sparse and Low Rank Subspace Clustering. Department of Electrical Engineering, Northeastern University, May 2014
9. Discovering the Language of Surgery. Department of Cognitive Science, University of California at San Diego, April 2014
10. Algebraic, Sparse and Low Rank Subspace Clustering. Department of Mathematics, Purdue University, March 2014

11. Algebraic, Sparse and Low Rank Subspace Clustering. Center for Imaging Science, Johns Hopkins University, September 2013
12. Algebraic, Sparse and Low Rank Subspace Clustering. Delft University, June 2013
13. Global Bag of Latent Features Models for Semantic Segmentation, Waseda University, Japan, May 2013
14. Discovering the Language of Surgery. Department of Computer and Information Science, University of Delaware, April 2013
15. Sparse and Low Rank Subspace Clustering. Department of Electrical Engineering, Ecole Polytechnique Federale de Lausanne, April 2013
16. Sparse and Low Rank Subspace Clustering. GRASP Lab, University of Pennsylvania, March 2013
17. Sparse and Low Rank Subspace Clustering. Robotics Institute, Carnegie Mellon University, March 2013
18. Discovering the Language of Surgery. Siemens Corporate Research, Princeton, December 2012
19. Sparse Subspace Classification and Clustering. Department of Computer and Information Science, Temple, Philadelphia, December 2012
20. Sparse Subspace Classification and Clustering. Department of Computer Science, Stanford University, November 2012
21. Sparse Subspace Classification and Clustering. Department of Electrical Engineering, North Carolina State University, Raleigh, October 2012
22. Sparse Subspace Classification and Clustering. Max Plank Institute, Tubingen, October 2012
23. Visual Dictionary Learning and Latent Conditional Random Fields for Joint Object Categorization and Segmentation. Instituto Italiano de Technologia, October 2012
24. Consensus on Manifolds. Department of Information Engineering. University of Padova, October 2012
25. Visual Dictionary Learning and Latent Conditional Random Fields for Joint Object Categorization and Segmentation. Ecole Centrale de Paris, October 2012
26. Mosaicing, Segmentation and Categorization of Dynamic Scenes, INRIA Rhone-Alpes, Grenoble, September, 2012
27. Sparse Subspace Classification and Clustering. Ecole Polytechnique Federal Lausanne, September, 2012
28. Sparse Subspace Classification and Clustering. Department of Information Technology and Electrical Engineering, ETH, Zurich, August 2012
29. Visual Dictionary Learning and Latent Conditional Random Fields for Joint Object Categorization and Segmentation. INRIA, Paris, July 2012
30. *A Riemannian Framework for Processing High Angular Resolution Image of the Brain,* Ceremade, Universite de Paris Dauphine, Paris, July 2012
31. *Mosaicing, Segmentation and Categorization of Dynamic Scenes,* INRIA, Paris, June 2012
32. *Latent Conditional Random Fields for Joint Object Categorization and Segmentation,* Microsoft Research Asia, Beijing, May 2012
33. *Latent Conditional Random Fields for Joint Object Categorization and Segmentation,* Center for Imaging Science, Johns Hopkins University, April 2012
34. *Latent Conditional Random Fields for Joint Object Categorization and Segmentation,* Department of Computer Science, Catholic University of Chile, March 2012
35. *Mosaicing, Segmentation and Categorization of Dynamic Scenes,* Department of Computer Science, University of Central Florida, February 2012
36. *A Riemannian Framework for Processing High Angular Resolution Image of the Brain,* Center for Biomedical Imaging, Catholic University of Chile, January 2012
37. *A Riemannian Framework for Processing High Angular Resolution Image of the Brain,* Laboratory for Computational Sensing and Robotics, Johns Hopkins University, November 2011

38. *A Riemannian Framework for Processing High Angular Resolution Image of the Brain,* Centre de Neuro-Imagerie de Recherche, Institute du Cerveau et de la Moelle Epinière, Paris, November 2011
39. *Clustering and Classification of High-Dimensional Data in Unions of Subspaces, Google Research New York, August 2011*
40. *Computer Vision: from Flying Robots to the Discovery of Brain Pathways, Department of Biomedical Engineering, Johns Hopkins University, October 2010*
41. *3D Motion Segmentation by Sparse Subspace Clustering,* Mathematical Imaging Group, Lunds Universitet, Sweden, May 2010
42. *Interactive Medical Image Segmentation, Department of Biomedical Engineering, Johns Hopkins University, April 2010*
43. *3D Motion Segmentation by Sparse Subspace Clustering.* Visual Geometry Group, University of Oxford, UK, September 2009
44. *Dynamic Texture Mosaicing, Segmentation, and Recognition. Computer Vision Center, Universidad Autonoma de Barcelona, Spain, May 2009.*
45. *Manifold Clustering with Applications in Computer Vision and Diffusion Weighted Imaging. Department of Mathematics, University of Liege,* March 2009
46. *Interactive Medical Image Segmentation and Image Analysis Techniques for Diffusion MRI, I4M Seminar Series, Johns Hopkins University, March 2009.*
47. *Generalized Principal Component Analysis (GPCA). Department of Mathematics, University of Maryland at Baltimore County,* November 2008
48. *Binet-Cauchy Kernels on Dynamical Systems.* Department of Electrical and Computer Engineering and Computer Science, University of Minnesota at Minneapolis, October 2008
49. *Generalized Principal Component Analysis (GPCA). Centre de Mathématiques Appliquées,* École Polytechnique, France, September 2008
50. *Binet-Cauchy Kernels on Dynamical Systems.* Department of Electrical Engineering and Computer Science, University of California at Berkeley, September 2008
51. *Segmentation and Fiber Clustering in Diffusion Tensor Images*. Department of Biomedical Engineering, McGill University, Canada, May 2008
52. *Dynamic Texture Mosaicing, Segmentation and Recognition*. Department of Electrical Engineering, University of Delaware, April 2008
53. *Modeling, Segmentation and Registration of Dynamic Textures*. Research School of Information, Science and Engineering, Australian National University, Canberra, Australia, November 2007
54. *Generalized Principal Component Analysis (GPCA).* Department of Mathematics, Vanderbilt University, September 2007
55. *Modeling and Segmentation of Dynamic Textures*. Department of Electrical Engineering, Herriot Watt University, Edimburgh, UK, December 2006
56. *Binet-Cauchy Kernels on Dynamical Systems.* Department of Electrical Engineering, Princeton University, November 2006
57. Modeling and Segmentation of Dynamic Textures. Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University, November 2006
58. *Dynamic GPCA: Theory and Applications in Computer Vision, Biomedical Imaging, and Dynamical Systems.* Department of Mechanical Engineering, University of Delaware, November 2006
59. *Binet-Cauchy Kernels on Dynamical Systems.* Center for Imaging Science, Johns Hopkins University, October 2006
60. *Algebraic Techniques for Segmentation and Registration with Applications to DTI and Interventional MRI*. Clinical Neuroscience Seminar, Johns Hopkins University, April 2006
61. *Generalized Principal Component Analysis (GPCA): an Algebraic Geometric Approach to Subspace Clustering.* Department of Computer Science, Stevens Institute of Technology, February 2006

62. *Segmenting a Beating Heart Using Generalized Principal Component Analysis*. IEEE Biomedical Engineering Chapter, December 2005
63. *Generalized Principal Component Analysis (GPCA)*. Department of Applied Mathematics and Statistics, Johns Hopkins University, November 2005
64. *Generalized Principal Component Analysis (GPCA)*. Department of Biomedical Engineering, Tsinghua University, October 2005
65. *Segmentation and Optical Flow for Multiple Moving Dynamic Textures*. University of California at Berkeley, June 2005
66. *Clustering Bilinear Surfaces*, Center for Imaging Science, Johns Hopkins University, April 2005
67. *Reconstruction of Dynamic Scenes using GPCA*. Siemens Corporate Research, April 2005
68. *Generalized Principal Component Analysis (GPCA)*. University of Maryland at College Park, April 2004
69. *Generalized Principal Component Analysis (GPCA)*, University of California at Berkeley, May 2004
70. *Generalized Principal Component Analysis (GPCA)*, University of Pennsylvania, March 2004
71. *Generalized Principal Component Analysis (GPCA)*, Carnegie Mellon University, February 2004.
72. *Generalized Principal Component Analysis (GPCA)*, University of California at Los Angeles, May 2003
73. *Generalized Principal Component Analysis (GPCA): an analytic approach to segmentation of static and dynamics scenes*, Princeton University, May 2003
74. *Generalized Principal Component Analysis (GPCA): an analytic approach to segmentation of static and dynamics scenes*, University of California at San Diego, April 2003
75. *Generalized Principal Component Analysis (GPCA): an analytic approach to segmentation of static and dynamics scenes*, Johns Hopkins University, March 2003
76. *Generalized Principal Component Analysis (GPCA): an analytic approach to segmentation of static and dynamics scenes*, California Institute of Technology, November 2002
77. *Segmentation of Dynamic Scenes*, University of Illinois at Urbana-Champaign, October 2002
78. *Segmentation of Dynamic Scenes from the Multibody Fundamental Matrix*, Stanford University, May 2002
79. *Structure from Motion and Pursuit-Evasion Games*, University of Southern California, November 2001
80. *The Multiple View Matrix*, University of Pennsylvania, August 2001
81. *Multi-Agent Probabilistic Pursuit-Evasion Games with Unmanned Ground and Aerial Vehicles*, University of Illinois at Urbana-Champaign, April 2001

ADVISING

Research Scientists

- Bijan Afsari (2014-present)
- Ben Haeffele (2015-present)

Postdoctoral Fellows

- Shahin Sefati (2014-2016)
- Bijan Afsari (2010-2014)
- Erdem Joruk (2011-2013), now at Vispera Information Technologies Co., Turkey
- Luca Zapella (2011-2013), then at Metaio GmbH in Munich, now at Apple in CA, USA
- Aastha Jain (2011-2012), now at Linkedin, USA
- Diego Rother (2009-2011), now at Google, USA
- Mihaly Petreczky (2006-2007), now assistant professor at Ecole des Mines, Douai, France

PhD Students

- Colin Lea (2013-present, PhD, CS, JHU, co-advised with Greg Hager)
- Manolis Tsakiris (2013-present, PhD, ECE, JHU)
- Chong Li (2012-present, PhD, ECE, JHU)
- Evan Schwab (2011-present, PhD, AMS, JHU)
- Lingling Tao (2010-present, PhD, ECE, JHU)
- Siddharth Mahendran (2010-present, PhD, ECE, JHU)
- Giann Gorospe (2009-present, PhD, BME, JHU)
- Ben Haeffele (2013-2015, PhD, BME, JHU, co-advised with Eric Young), now research scientist at JHU
- Roberto Tron (2007-2012, PhD, ECE, JHU), then post-doctoral researcher at Upenn, now assistant professor at Boston University
- Rizwan Chaudhry (2006-2012, PhD, CS, JHU), then software engineer at Microsoft, now software engineer at Nest-Google
- Ehsan Elhamifar (2006-2012, PhD, ECE, JHU), then post-doctoral researcher at UC Berkeley, then Assistant Professor at Northeastern University
- Ertan Centigul (2005-2011, PhD, BME, JHU), then research scientist at Siemens Corporate Research
- Avinash Ravichandran (2004-2010, PhD ECE, JHU), then post-doctoral researcher at UCLA, then research scientist at Amazon
- Dheeraj Singaraju (2004-2010, PhD ECE, JHU), then post-doctoral researcher at UC Berkeley, then software engineer at Google
- Alvina Goh (2004-2010, PhD BME, JHU), then adjunct assistant professor at the National University of Singapore

MSc Students

- Benjamín Béjar (2011-present, BME, JHU), now post-doctoral fellow at EPFL
- Jixin Li (2009-2010, MSc, ECE, JHU), now Lead Research Analyst at Videology
- Gagan Bansal (2007-2008, M.Sc., CS, JHU), then Research Engineering at Yahoo!, then Senior Research Software Development Engineer, now senior RSDE at Azure Machine Learning, Microsoft
- Atiyeh Ghoreyshi (2005-2006, M.S. BME, JHU), then PhD student at McGill University, then post-doc at University of Southern California, then engineer at Masimo Corporation, then senior R&D scientist at Auris Surgical Robotics

Undergraduate Students

- Claire Donnat (2015, Ecole Polytechnique)
- Bertrand Rondepierre (2013, Ecole Polytechnique)
- Soren Wolfers (2013, DAAD visiting student)
- Nicolas Jimenez (2012-2013, research assistant)
- Arunesh Mittal (2012-2013, Neuroscience, JHU)
- Patrick McClure (2012, REU student)
- James Breen (2011, REU student)
- Simon Schütz (2010, DAAD visiting student)
- Martin Wojkowsky (2010, DAAD visiting student)
- Aline Elad (2010, REU student)
- Alex Hsieh (2010, BME, JHU)
- Lucas Theis (2009, DAAD visiting student)

- Andreas Beckers (2009, DAAD visiting student)
- Leyla Isik (2009-2010, REU, BME, JHU)
- Solomon Liu (2008-2011, BME, JHU)
- Venkatesh Srinivas (2008, ME, JHU)
- James Choi (2008, ME, JHU)
- Charlie Ouyang (2008, B.S. BME, JHU)
- Vincent Yeh (2007, B.S. BME, JHU)
- Jai Madhok (2007, B.S. BME, JHU)
- Roberto Tron (2006, Visiting student), now at the JHU as a PhD student
- Matthias Behnisch (2006, Visiting student), now at Bielefeld University, Germany
- Andy Wong (2006, B.S. BME, JHU)
- Mary Ellen Pozo (2005, B.S. BME, JHU)
- Sampreet Niyogi (2004-2005, B.S. BME, JHU), now at the University of Pennsylvania as a PhD student

High School Students

- Sruti Nuthalapati (2010)
- Maddie Crowl (2009), Women in Science and Engineering (WISE) program
- Andy Tien (2006), now at JHU as an undergraduate student

COMMITTEES AND SERVICE

Advisory Board

- Tau-Beta-Pi Honor Society, Hopkins Chapter (2008-2011)

University Service

- Board of Review, Academic Council, Johns Hopkins University (2011-2014)
- Keynote Speaker at the Symposium for Underrepresented Undergraduates (2010)
- Speaker and Judge at JHU Robo Challenge (2009)
- Health Professions Committee Member (2008, 2009, 2011, 2015)
- Faculty Assembly Benefits Committee (2008, 2009)

School Service

- Faculty Search Committee, Center for Imaging Science (2014)
- Faculty Search Committee, Laboratory for Computational Sensing and Robotics (2011)
- Faculty Search Committee, Institute for Computational Medicine (2006, 2008, 2011)
- Interview Faculty Candidates for Position in Control and Dynamical Systems, Department of Electrical Engineering (2005, 2007)
- Member of Joint Curriculum Committee, Whiting School of Engineering (2005-2008)
- Taught two courses to replace faculty on leave from other departments: Computer Vision (Spring 2008) and Linear Dynamical Systems (Spring 2007)

Department Service

- Organize PhD Admissions, Center for Imaging Science (2004-2010)
- Organize Welcome to PhD students, Center for Imaging Science (2004-present)
- MSE Admissions, Department of Biomedical Engineering (2006, 2008)
- Member of Teaching Assistant Committee, Department of Biomedical Engineering (2006)

- Member of PhD Program Curriculum Committee, Department of Biomedical Engineering (2005)
- Member of Undergraduate Curriculum Committee, Department of Biomedical Engineering (2009-11)

Member of Qualifying Examination Committee

– Chong You	Electrical and Computer Engineering	2013
– Evan Schwab	Electrical and Computer Engineering	2013
– Siddharth Mahendran	Electrical and Computer Engineering	2011
– Lingling Tao	Electrical and Computer Engineering	2011
– Merve Kaya	Electrical and Computer Engineering	2011
– Roberto Tron	Electrical and Computer Engineering	2008
– Ehsan Elhamifar	Electrical and Computer Engineering	2007
– Dheeraj Singaraju	Electrical and Computer Engineering	2005
– Avinash Ravichandran	Electrical and Computer Engineering	2005

Member of Graduate Board Examination Committee

– Evan Schwab	Electrical and Computer Engineering	2014
– Hao Jiang	Applied Mathematics and Statistics	2014
– Colin Lea	Computer Science	2014
– Lingling Tao	Electrical and Computer Engineering	2013
– Siddharth Mahendran	Electrical and Computer Engineering	2013
– Raphael Sznitman	Computer Science	2009-09-17
– Thong Do	Electrical and Computer Engineering	2009-05-14
– David Grow	Mechanical Engineering	2009-05-05
– Rizwan Chaudhry	Computer Science	2009-05-04
– Amy Blank	Mechanical Engineering	2009-04-23
– Si Chen	Electrical and Computer Engineering	2009-04-16
– Zachary Pezzementi	Computer Science	2009-03-31
– Ehsan Elhamifar	Electrical and Computer Engineering	2009-02-02
– Dung Nguyen	Electrical and Computer Engineering	2008-11-10
– Eatai Roth	Mechanical Engineering	2008-10-24
– David Smith	Computer Science	2008-08-14
– Matthew Moses	Mechanical Engineering	2008-07-15
– Ertan Cetingul	Biomedical Engineering	2008-05-05
– Tomonori Yamamoto	Mechanical Engineering	2008-03-10
– Michael Kutzer	Mechanical Engineering	2007-12-06
– Netta Gurari	Mechanical Engineering	2007-10-26
– Avinash Ravichandran	Electrical and Computer Engineering	2007-05-30
– Dheeraj Singaraju	Electrical and Computer Engineering	2007-05-01
– Vinutha Kallem	Mechanical Engineering	2007-02-23
– Harsh Agarwal	Electrical and Computer Engineering	2006-10-23
– Le Lu	Computer Science	2006-03-15
– Alvina Goh	Biomedical Engineering	2006-02-01
– Yasmin Hashambhoy	Biomedical Engineering	2005-09-06
– Xiaodong Fan	Electrical and Computer Engineering	2004-05-05

– Xiangtian Dai	Computer Science	2004-04-19
– Jason Corso	Computer Science	2004-03-23

Member of Thesis Proposal Committee

– Manolis Tsakiris	Electrical and Computer Engineering	2015
– Siddharth Mahendran	Electrical and Computer Engineering	2015
– Lingling Tao	Electrical and Computer Engineering	2015
– Ben Haeffele	Biomedical Engineering	2014
– Amir Pourmorteza	Biomedical Engineering	2011
– Roberto Tron	Electrical and Computer Engineering	2010
– Ehsan Elhamifar	Electrical and Computer Engineering	2009-03-18
– Raphael Sznitman	Computer Science	2009
– Rizwan Chaudhry	Computer Science	2009
– Alvina Goh	Biomedical Engineering	2009-05-05
– Avinash Ravichandran	Electrical and Computer Engineering	2007
– Dheeraj Singaraju	Electrical and Computer Engineering	2007
– Mauktik Kulkarni	Biomedical Engineering	2005
– Luis Gutierrez	Biomedical Engineering	2005
– Vincent Huang	Biomedical Engineering	2005

Member of Thesis Defense Committee

– Ben Haeffele	Biomedical Engineering	2015
– Yin Chen	Computer Science	2012
– Rizwan Chaudhry	Computer Science	2012
– Ehsan Elhamifar	Electrical and Computer Engineering	2012
– Roberto Tron	Electrical and Computer Engineering	2012
– Balakrishnan Varadarajan	Electrical and Computer Engineering	2011
– Ertan Cetingul	Biomedical Engineering	2011
– Dheeraj Singaraju	Electrical and Computer Engineering	2010
– Avinash Ravichandran, PhD	Electrical and Computer Engineering	2010
– Alvina Goh	Biomedical Engineering	2010
– Hong Do, PhD	Electrical and Computer Engineering	2009
– Gagan Bansal, MSc	Computer Science	2009
– Atiyeh Ghoreyshi, MSc	Biomedical Engineering	2006
– Jason Corso, PhD	PhD Computer Science	2005
– Xiangtian Dai, PhD	PhD Computer Science	2005

FUNDING

Current

1. **JHU** “Algorithms for Counting and Classification of Blood Cells”, $2,879,709, 10/01/15-09/30/18, CoPI 50% effort
2. **NIH R01HD87133-01** “GEAR - Grounded Early Adaptive Rehabilitation”, $329,643, 11/01/15-10/31/18, CoPI 10% effort

3. **NSF 1527340**, “RI: Small: Object Detection, Pose Estimation, and Semantic Segmentation Using 3D Wireframe Models,” $450,192, 09/01/15-08/31/18, PI 4% effort.
4. **NSF 1447822**, “BIGDATA: F: DKA: Learning a Union of Subspaces from Big and Corrupted Data,” $600,000, 09/1/14-08/31/17, PI, 8% effort.
5. **NIH R21HL122881-01A1**, “Computational Classification of Human Stem Cell-Derived Cardiomyocytes”, $143,587, 11/1/14-10/31/16, Co-PI, 4% effort.
6. **NSF 1335035**, “Geometry and Statistics on Spaces of Dynamical Systems for Pattern Recognition in High-Dimensional Time Series,” $391,000, 09/01/13-08/31/16, PI, 8% effort.
7. **ONR N000141310116**, “Spatio-Temporal CRF Models for Joint Categorization, Segmentation and Tracking of Objects in Videos,” $389,998, 01/01/13-12/31/16, PI, 14.62% effort.
8. **NSF 1218709**, “RI: Small: Structured Sparse Conditional Random Fields Models for Joint Categorization and Segmentation of Objects,” $449,794, 09/01/12-08/31/16, PI 4% effort.

Completed

1. **NSF 0964416**, “RI: Medium: Active Scene Interpretation by Entropy Pursuit,” $1,255,280, 7/1/10-6/31/13, coPI, 4% effort.
2. **NSF-OIA 0941362**, “CDI Type-II: Language Models for Human Dexterity”, $1,809,437, 9/1/09-8/31/13, CoPI, 8% effort.
3. **NSF-CSN 0931805**, “CPS: Medium: Hybrid Systems for Modeling and Teaching the Language of Surgery,” $1,499,828, 9/1/09-8/31/13, coPI, 8% effort.
4. **Sloan Research Fellowship**, $50,000, 09/1/09-08/31/13, PI.
5. **ONR Young Investigator Award N00014-09-10839**, “An Optimization Framework for Simultaneous Object Categorization and Segmentation,” $510,000, 06/01/09-05/31/13, PI, 12% effort.
6. **DARPA** “OUTBIDS: Open-Universe Theory for Bayesian Inference, Decision, and Sensing”, $4,527,376, 10/01/11-03/31/13, coPI, 17% effort.
7. **NIH 5R21HL108210 “**Functional Classification of Cardiomyocytes Derived from Stem Cells,” $143,587, 4/1/11-3/31/13, coPI, 4% effort.
8. **NSF-ECCS 0941463**, “CDI-Type I: Collaborative Research: A Bio-Inspired Approach to Recognition of Human Movements and Movement Styles,” $740,000, 1/1/10-12/31/12, PI, 5% effort.
9. **NSF-1005411** “Cross-Cutting Research Workshops on Intelligent Information Systems,” $308,000, 01/01/10-12/31/11, CoPI, 4% effort.
10. **ONR N00014-09-10084**, “Recognizing and Learning Dynamic Texture Categories,” $345,000, 10/1/08-9/30/12, PI, 12% effort.
11. **NSF CNS-0834470**, “Collaborative Research: Distributed Sensing via Robust Consensus on Manifolds,” $650,000, 9/1/08-8/31/10, PI, 4% effort.
12. **NSF ISS-0447739**, “CAREER: Recognition of Dynamic Activities in Unstructured Environments,” $440,000, 2/1/05-1/31/11, PI, 8% effort.
13. **ARL General Dynamics Robotics Collaborative Technology Alliance 80014MC**, “Recognition of Individual and Group Activities," $121,943, 07/16/08-12/30/09, PI, 4% effort.
14. **JHU APL-934652** (Johns Hopkins University Applied Physics Laboratory), “Information Fusion and Localization in Distributed Sensor Systems,” $107,799, 12/17/07-8/31/09, PI D. Lucarelli, subcontractor R. Vidal, 4% effort.
15. **ONR N00014-05-10836**, “Segmenting Rigid Motions from Dynamic Textures,” $348,000, 8/1/05-7/31/08, PI, 20% effort.
16. **NSF CNS-0509101**, “Collaborative Research: An Algebraic Geometric Approach to Hybrid Systems Identification,” $350,000, 9/1/05-8/31/08, PI Y. Ma, co-PI R. Vidal, 4% effort.
17. **NIH RO1 HL082729**, “Defibrillation Mechanisms in Ischemic Hearts,” $273,425, 02/01/07-01/31/08, PI N. Trayanova, subcontractor R. Vidal, 8% effort.

18. **WSE-APL** (Whiting School of Engineering - Applied Physics Laboratory), “Advanced Video Exploitation for Unmanned Aerial Vehicles,” $300,000, 10/1/05-8/31/07, Co-PI, 4% effort.
19. **NIH-NHLBI**, “Magnetic Resonance Guided Electrophysiology Intervention,” $191,110, 11/1/04-6/30/06, PI H. Halperin, subcontractor R. Vidal, 20% effort.

PUBLICATIONS

Google Scholar (GS) Statistics as of 11/2015

- H-INDEX: 49
- Maximum Cites: 518
- Total Cites: 8684
- Total Articles: 200
- Cites/Paper: 43

Books

[1] R. Vidal, Yi Ma and S. Sastry. *Generalized Principal Component Analysis (GPCA)*, Springer Verlag, 2016 (In press)

[2] R. Vidal, A. Heyden and Y. Ma. Dynamical Vision, Springer Verlag, January 2007.

Preprints

[3] B. D. Haeffele and R. Vidal. Global Optimality in Tensor Factorization, Deep Learning, and Beyond. Preprint arXiv, abs/1506.07540, 2015.

[4] C. You and R. Vidal. Sparse subspace clustering by orthogonal matching pursuit. Preprint arxiv, abs/1507.01238, 2015.

[5] C. You and R. Vidal. Subspace-Sparse Representation. Preprint arXiv:1507.01307, 2015

[6] M. Tsakiris, R Vidal. Algebraic Clustering of Affine Subspaces. Preprint arXiv:1509.06729, 2015

[7] M. Tsakiris, R Vidal. Filtrated Algebraic Subspace Clustering. Preprint arXiv:1506.06289, 2015

[8] M. Tsakiris, R. Vidal. Dual Principal Component Pursuit. Preprint arXiv:1510.04390, 2015

Refereed Journal Papers and Book Chapters

[9] V. Patel, H. Nguyen, and R. Vidal. Latent Space Sparse and Low-Rank Subspace Clustering. IEEE Journal of Selected Topics in Signal Processing, 2015

[10] H. Lobel, R. Vidal and A. Soto. Learning Shared, Discriminative, and Compact Representations for Visual Recognition. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2015

[11] R. Tron and R. Vidal. Distributed 3-D Localization of Camera Sensor Networks from 2-D Image Measurements, IEEE Transactions on Automatic Control, 59(12):3325-3340, 2014

[12] G. Gorospe, R. Zhu, M. Millrod, E. Zambidis, L. Tung, and R. Vidal. Automated Grouping of Action Potentials of Human Embryonic Stem Cell-Derived Cardiomyocytes. IEEE Transactions on Biomedical Engineering, 61(9):2389-2395, 2014.

[13] B. Afsari, R. Vidal. Distances on Spaces of High-Dimensional Linear Stochastic Processes: A Survey. Geometric Theory of Information, Signals and Communication Technology, pp. 219-242, 2014.

[14] H. E. Cetingul, M. Wright, P. Thompson, and R. Vidal. Segmentation of High Angular Resolution Diffusion MRI using Sparse Riemannian Manifold Clustering. IEEE Transactions on Medical Imaging, 33(2):301–317, 2014.

[15] F. Ofli, R. Chaudhry, G. Kurillo, R. Vidal, and R. Bajcsy. SMIJ: Sequence of the Most Informative Joints: A New Representation for Human Skeletal Action Recognition. Journal of Visual Communication and Image Representation, 25(1):24–38, 2014.

[16] R. Vidal and P. Favaro. Low Rank Subspace Clustering (LRSC). Pattern Recognition Letters, 43:47–61, 2014

[17] R. Chaudhry, G. Hager and R. Vidal. Dynamic Template Tracking and Recognition. International Journal of Computer Vision, 105(1):19–48, 2013

[18] L. Zappella, B. Béjar, G. Hager, and R. Vidal. Surgical Gesture Classification from Video and Kinematic data. Medical Image Analysis, 17(7):732–745, 2013.

[19] E. Elhamifar and R Vidal. Sparse Subspace Clustering: Algorithm, Theory, and Applications. IEEE Transactions on Pattern Analysis and Machine Intelligence, 35(11):2765–2781, 2013
Cited by (GS): 168

[20] B. Afsari, R. Tron and R. Vidal. On The Convergence of Gradient Descent for Finding the Riemannian Center of Mass. SIAM Journal on Control and Optimization, 51(3):2230–2260, 2013

[21] R. Tron, B. Afsari and R. Vidal. Riemannian Consensus for Manifolds with Bounded Curvature. IEEE Transactions on Automatic Control, 58(4): 921-934, 2013

[22] A. Ravichandran, R. Chaudhry and R. Vidal. Categorizing Dynamic Textures using a Bag of Dynamical Systems. In IEEE Transactions on Pattern Analysis and Machine Intelligence, 35(2): 342-353, 2013

[23] E. Elhamifar and R. Vidal. Block-Sparse Recovery via Convex Optimization. IEEE Transactions on Signal Processing, 60(8): 4094-4107, 2012
Cited by (GS): 58

[24] D. Singaraju, L. Grady, A. Sinop and R. Vidal. "Continuous Valued MRFs for Image Segmentation." In Advances in Markov Random Fields for Vision and Image Processing, MIT Press, September 2011

[25] R. Tron, A. Terzis and R. Vidal. Distributed Image-Based 3-D Localization in Camera Sensor Networks. In Distributed Video Sensor Networks, Springer Verlag, pages 289-302, 2011

[26] D. Singaraju and R. Vidal. Estimation of Alpha Mattes for Multiple Layers. IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 33, no. 7, pages 1295-1309, July 2011

[27] R. Tron and R. Vidal. Distributed Computer Vision Algorithms. IEEE Signal Processing Magazine, vol. 28, no. 3, pages 32-45, May 2011

[28] R. Vidal. Subspace Clustering. IEEE Signal Processing Magazine, volume 28, no. 2, pages 52-68, March 2011
Cited by (GS): 228

[29] F. Lauer, G. Bloch and R. Vidal. A Continuous Optimization Framework for Hybrid System Identification. Automatica, volume 47, issue 3, pages 608-613, March, 2011

[30] A. Goh, C. Lenglet, P. Thompson and R. Vidal. A Nonparametric Riemannian Framework for Processing High Angular Resolution Diffusion Images and its Applications to ODF-based Morphometry. Neuroimage, vol. 56, no. 3, pages 1181-1201, February 2011

[31] H.E. Cetingul, G. Plank, N. Trayanova and R. Vidal. Estimation of Local Orientations in Fibrous Structures with Applications to the Purkinje System. IEEE Transactions on Biomedical Engineering, vol. 58, no. 6, pages 1762-1772, February 2011

[32] A. Ravichandran and R. Vidal. Video Registration Using Dynamic Textures. IEEE Transactions on Pattern Analysis and Machine Intelligence, volume 33, number 1, pages 158 - 171, January 2011

[33] S. Rao, R. Tron, R. Vidal, and Y. Ma. *Motion Segmentation in the Presence of Outlying, Incomplete, or Corrupted Trajectories*. IEEE Transactions on Pattern Analysis and Machine Intelligence, October 2010
Cited by (GS): 92

[34] J. Daafouz, M.D. Di Benedetto, V.D. Blondel, G. Ferrari-Trecate, L. Hetel, M. Johansson, A.l. Juloski, S. Paoletti, G. Pola, E. De Santis, and R. Vidal. Switched and Piecewise Affine Systems. In Handbook of Hybrid Systems Control, Theory, Tools, Application, pp. 87–137, Cambridge University Press, 2009

[35] R. Vidal. *Recursive Identification of Switched ARX Systems.* Automatica, volume 44, number 9, pages 2274-2287, September 2008
Cited by (GS): 67

[36] R. Vidal, R. Tron and R. Hartley. Multiframe Motion Segmentation with Missing Data Using PowerFactorization and GPCA. International Journal of Computer Vision, volume 79, number 1, pages 85-105, August, 2008
Cited by (GS): 98

[37] R. Vidal and R. Hartley. *Three-View Multibody Structure from Motion.* IEEE Transactions on Pattern Analysis and Machine Intelligence, volume 30, issue 2, pages 214-227, February 2008
Cited by (GS): 88

[38] S. Paoletti, A. Juloski, G. Ferrari-Trecate, and R. Vidal. Identification of Hybrid Systems: A Tutorial. European Journal of Control, volume 14, number 2-3, pages 242-260, July 2007
Cited by (GS): 198

[39] V. Vishwanathan, A. Smola, and R. Vidal. *Binet-Cauchy Kernels on Dynamical Systems and its Application to the Analysis of Dynamic Scenes*. International Journal of Computer Vision, volume 73, issue 1, pages 95-119, June 2007
Cited by (GS): 109

[40] R. Vidal. *Segmentation of Dynamic Scenes Taken by a Central Panoramic Camera. In* Imaging Beyond the Pinhole Camera, volume 33, pages 125-142, Springer Verlag, December 2006

[41] R. Vidal and Y. Ma. *A Unified Algebraic Approach to 2-D and 3-D Motion Segmentation.* Journal of Mathematical Imaging and Vision, volume 25, issue 3, pages 403-421, October 2006

[42] R. Vidal, Y. Ma, S. Soatto and S. Sastry. *Two-View Multibody Structure from Motion. International Journal of Computer Vision*, volume 68, number 1, pages 7-25, June, 2006
Cited by (GS): 129

[43] R. Vidal, Yi Ma and S. Sastry. *Generalized Principal Component Analysis (GPCA)*. IEEE Transactions on Pattern Analysis and Machine Intelligence, volume 27, number 12, pages 1-15, December 2005
Cited by (GS): 444

[44] A. Ghoreyshi, R. Vidal, and D. Mery. *Segmentation of Circular Casting Defects Using a Robust Algorithm*. Insight, Journal of the British Institute of Non-Destructive Testing, volume 47, number 10, pages 615-617, October 2005

[45] R. Vidal, O. Shakernia and S. Sastry. *Following the Flock: Distributed Formation Control with Omnidirectional Vision-Based Motion Segmentation and Visual Servoing*. IEEE Robotics and Automation Magazine, volume 11, issue 4, pages 14-20, December 2004
Cited by (GS): 90

[46] Y. Ma, K. Huang, R. Vidal, J. Kosecka and S. Sastry. *Rank Conditions on the Multiple View Matrix*. International Journal of Computer Vision, volume 59, number 2, pages 115-137, September 2004.
Cited by (GS): 39

[47] R. Vidal, O. Shakernia, J. Kim, D. Shim and S. Sastry. *Probabilistic Pursuit-Evasion Games: Theory, Implementation and Experimental Evaluation*. IEEE Transactions on Robotics and Automation, volume 18, number 5, pages 662-669, October 2002
Cited by (GS): 377

[48] Y. Ma, R. Vidal, S. Hsu and S. Sastry. *Optimal Motion Estimation from Multiple Images by Normalized Epipolar Constraint*. Journal of Communications in Information and Systems, number 1, pages 51-73, 2001

[49] J. Concha, A. Cipriano and R. Vidal. *Design of Fuzzy Controllers Based on Stability Analysis*. Special Issue on Formal Methods for Fuzzy Modeling and Control, Fuzzy Sets & Systems, number 121, pages 25-38, 2001

[50] J. Concha, A. Cipriano and R. Vidal. *Design of Stable Fuzzy Controllers for Nonlinear Processes*. In Stability Issues in Fuzzy Control, J. Aracil and F. Gordillo Eds., Springer Verlag, 2000

[51] A. Cipriano, M. Guarini, R. Vidal, A. Soto, C. Sepúlveda, D. Mery and H. Briseño. *A Real Time Visual Sensor for Supervision of Flotation Cells*. Minerals Engineering, number 837, volume 11, pp 489-499, May 1998
Cited by (GS): 53

Refereed Conference Papers

48 in top computer vision and machine learning conferences such as ICCV (5), CVPR (26), ECCV (9), NIPS (3), ICML/ECML (4) and MICCAI (6). As in most areas of Computer Science, these conferences have acceptance ratios (AR) of about 20-30%, and are considered to be as important as journals.

[52] L. Tao and R. Vidal. Moving Poselets: A Discriminative and Interpretable Skeletal Motion Representation for Action Recognition. In *ChaLearn Looking at People Workshop*, ICCV 2015.

[53] G. Gorospe, R. Zhu, J. Q. He, L. Tung, L. Younes, and R. Vidal. Efficient Metamorphosis Computation for Classifying Embryonic Cardiac Action Potentials. In *MICCAI Workshop on the Mathematical Foundations in Computational Anatomy*, 2015.

[54] E. Schwab, M. A. Yassa, M. Weiner, and R. Vidal. Using Automatic HARDI Feature Selection, Registration, and Atlas Building to Characterize the Neuroanatomy of Beta-Amyloid Pathology. In *MICCAI Workshop on Computational Diffusion MRI*, 2015.

[55] S. Sefati, N. J. Cowan, and R. Vidal. Learning Shared, Discriminative Dictionaries for Surgical Gesture Segmentation and Classification. In *MICCAI Workshop on Modeling and Monitoring of Computer Assisted Interventions (M2CAI)*, 2015.

[56] C. You and R. Vidal. Geometric Conditions for Subspace-Sparse Recovery. In *Proceedings of the 32nd International Conference on Machine Learning*, pp. 1585–1593, 2015.

[57] C. Yang, D. Robinson, and R. Vidal. Sparse Subspace Clustering with Missing Entries. In *Proceedings of the 32nd International Conference on Machine Learning*, 2015.

[58] C. Li, C. You, and R. Vidal. On Sufficient Conditions for Affine Sparse Subspace Clustering. In *Signal Processing with Adaptive Sparse Structured Representations*, 2015.

[59] C. G. Li and R. Vidal. Structured Sparse Subspace Clustering: A Unified Optimization Framework. IEEE Conference on Computer Vision and Pattern Recognition, 2015.

[60] B. Afsari and R. Vidal. Model Order Reduction for Discrete-Time LTI Systems Using the Alignment Distance. In *American Control Conference*, 2015.

[61] S. Sefati, N. J. Cowan, and R. Vidal. Linear Systems with Sparse Inputs: Observability and Input Recovery. In *American Control Conference*, 2015.

[62] C. Lea, G. D. Hager, and R. Vidal. An Improved Model for Segmentation and Recognition of Fine-Grained Activities with Application to Surgical Training Tasks. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 1123–1129, 2015.

[63] M. C. Tsakiris and R. Vidal. Abstract Algebraic-Geometric Subspace Clustering. In Asilomar Conference on Signals, Systems and Computers, 2014.

[64] V. Patel and R. Vidal. Kernel Sparse Subspace Clustering. IEEE International Conference on Image Processing, 2014.

[65] L. Tao, F. Porikli, and R. Vidal. Sparse Dictionaries for Semantic Segmentation. In European Conference on Computer Vision, 2014.

[66] B. Haeffele, E. Young, and R. Vidal. Structured Low-Rank Matrix Factorization: Optimality, Algorithm, and Applications to Image Processing. In International Conference on Machine Learning, 2014.

[67] R. Vidal S. Wolfers, E. Schwab. Nonnegative ODF Estimation Via Optimal Constraint Selection. In IEEE International Symposium on Biomedical Imaging, 2014.

[68] B. Afsari and R. Vidal. The Alignment Distance on Spaces of Linear Dynamical Systems. In IEEE Conference on Decision and Control, 2013.

[69] R. Chaudhry and R. Vidal. Initial-State Invariant Binet-Cauchy Kernels for the Comparison of Linear Dynamical Systems. In IEEE Conference on Decision and Control, 2013.

[70] E. Yoruk and R. Vidal. A 3D Wireframe Model for Efficient Object Localization and Pose Estimation. In ICCV Workshop on 3D Representation and Recognition, 2013.
Best Paper Award

[71] A. Jain, S. Chatterjee, and R. Vidal. Coarse-to-fine Semantic Video Segmentation using Supervoxel Trees. In IEEE International Conference on Computer Vision, 2013.
AR: 2.52%

[72] V. M. Patel, H. V. Nguyen, and R. Vidal. Latent Space Sparse Subspace Clustering. In IEEE International Conference on Computer Vision, 2013.

[73] H-A. Lobel, A. Soto, and R. Vidal. Hierarchical Joint Max-Margin Learning of Mid and Top Level Representations for Visual Recognition. In IEEE International Conference on Computer Vision, 2013.

[74] B. Afsari and R. Vidal. Group Action Induced Distances on Spaces of High-Dimensional Linear Stochastic Processes. In Geometric Science of Information, pp. 425–432, LNCS 8085, 2013.

[75] G. Gorospe, L. Younes, L. Tung, and R. Vidal. A Metamorphosis Distance for Embryonic Cardiac Action Potential Interpolation and Classification. In Medical Image Computing and Computer Assisted Intervention, pp. 469–476, 2013.

[76] L. Tao, L. Zappella, G. Hager, and R. Vidal. Segmentation and Recognition of Surgical Gestures from Kinematic and Video Data. In Medical Image Computing and Computer Assisted Intervention, 2013.

[77] N. Ahmidi, Y. Gao, B. Bejar, S. Vedula, S. Khudanpur, R. Vidal, and G. Hager. String Motif-Based Description of Tool Motion for Detecting Skill and Gestures in Robotic Surgery. In Medical Image Computing and Computer Assisted Intervention, 2013.

[78] H-A. Lobel, R. Vidal, D. Mery, and A. Soto. Joint Dictionary and Classifier Learning for Categorization of Images Using a Max-margin Framework. In Pacific-Rim Symposium on Image and Video Technology, 2013.
Best Student Paper Award

[79] N. D. Jimenez, B. Afsari, and R. Vidal. Fast Jacobi-type Algorithm for Computing Distances Between Linear Dynamical Systems. In European Control Conference, 2013.

[80] R. Chaudhry, F. Ofli, G. Kurillo, R. Bajcsy, and R. Vidal. Bio-inspired Dynamic 3D Discriminative Skeletal Features for Human Action Recognition. In International Workshop on Human Activity Understanding from 3D Data, 2013.

[81] E. Schwab, H. E. Cetingul, B. Afsari, M. A. Yassa, and R. Vidal. Rotation Invariant Features for HARDI. In Information Processing in Medical Imaging, 2013.

[82] F. Ofli, R. Chaudhry, G. Kurillo, R. Vidal, and R. Bajcsy. Berkeley MHAD: A Comprehensive Multimodal Human Action Database. In IEEE Workshop on Applications of Computer Vision, 2013.

[83] R. Tron, B. Afsari and R. Vidal. Intrinsic Consensus on SO(3) with Almost-Global Convergence. IEEE Conference on Decision and Control, 2012
Best Student Paper Award

[84] E. Elhamifar, G. Sapiro and R. Vidal. Finding Exemplars from Pairwise Dissimilarities via Simultaneous Sparse Recovery. Neural Information and Processing Systems (NIPS), December 2012

[85] A. Jain, L. Zappella, P. McClure and R. Vidal. Visual Dictionary Learning for Joint Object Categorization and Segmentation. European Conference on Computer Vision (ECCV), October 2012.

[86] E. Schwab, B. Afsari and R. Vidal. Estimation of Non-Negative ODFs using Eigenvalue Distribution of Spherical Functions. International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), October 2012

[87] B. Bejar, L. Zappella, and R. Vidal. Surgical Gesture Classification from Video Data. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), October 2012.
Best Paper Award on Medical Robotics and Computer Assisted Interventions

[88] D. Perrone, A. Ravichandran, R. Vidal and P. Favaro, Image Priors for Image Deblurring with Uncertain Blur. British Machine Vision Conference, September 2012.

[89] F. Ofli, R. Chaudhry, G. Kurillo, R. Vidal and R. Bajcsy. Sequence of the Most Informative Joints (SMIJ): A New Representation for Human Skeletal Action Recognition. International Workshop on Human Activity Recognition from 3D Data, June 2012.

[90] B. Afsari, R. Chaudhry, A. Ravichandran, and R. Vidal. Group Action Induced Distances for Averaging and Clustering Linear Dynamical Systems with Applications to the Analysis of Dynamic Visual Scenes. IEEE Conference on Computer Vision and Pattern Recognition, June 2012.

[91] E. Elhamifar, G. Sapiro, and R. Vidal. See All by Looking at A Few: Sparse Modeling for Finding Representative Objects. IEEE Conference on Computer Vision and Pattern Recognition, June 2012.
Cited by (GS): 60

[92] L. Tao, E. Elhamifar, S. Khudanpur, G. Hager and R. Vidal. Sparse Hidden Markov Models for Surgical Gesture Classification and Skill Evaluation. Information Processing in Computed Assisted Interventions, June 2012.

[93] H. E. Cetingul, B. Afsari and R. Vidal. An Algebraic Solution to Rotation Recovery in HARDI from Correspondences of Orientation Distribution Functions. IEEE International Symposium on Biomedical Imaging, April 2012.

[94] H. E. Cetingul, B. Afsari, M. Wright, P. Thompson, and R. Vidal. A Riemannian Framework for Processing Orientation Distribution Functions on the Joint Orientation and Shape Space. IEEE International Symposium on Biomedical Imaging, April 2012.

[95] E. Elhamifar and R. Vidal. Sparse Manifold Clustering and Embedding. Neural Information Processing and Systems (NIPS), December 2011.
Cited by (GS): 63

[96] R. Tron, B. Afsari and R. Vidal. Average Consensus on Riemannian Manifolds with Bounded Curvature. IEEE Conference on Decision and Control, December 2011.
Finalist for Best Student Paper Award

[97] Y. Chen, R. Tron, A. Terzis and R. Vidal. Corrective Consensus with Asymmetric Wireless Links. IEEE Conference on Decision and Control, December 2011.

[98] D. Rother and R. Vidal. A Hypothesize-and-Bound Algorithm for Simultaneous Object Classification, Pose Estimation and 3D Reconstruction from a Single 2D Image. ICCV Workshop on 3D Representation and Recognition (3dRR-11), November 2011.

[99] E. Elhamifar and R. Vidal. Sparsity in Unions of Subspaces for Classification and Clustering of High-Dimensional Data, Allerton Conference on Communication, Control, and Computing, 2011.

[100] P. Favaro and R. Vidal and A. Ravichandran. A Closed Form Solution to Robust Subspace Estimation and Clustering. IEEE Conference on Computer Vision and Pattern Recognition, pages 1801-1807, June 2011.
Cited by (GS): 76

[101] E. Elhamifar and R. Vidal. Robust Classification Using Structured Sparse Representation. IEEE Conference on Computer Vision and Pattern Recognition, June 2011.
Cited by (GS): 106

[102] R. Tron and R. Vidal. Distributed Computer Vision Algorithms Through Distributed Averaging. IEEE Conference on Computer Vision and Pattern Recognition, pages 57 - 63, June 2011.

[103] D. Singaraju and R. Vidal. Using Global Bag of Features Models in Random Fields for Joint Categorization and Segmentation of Objects. IEEE Conference on Computer Vision and Pattern Recognition, June 2011.

[104] Y. Chen, R. Tron, A. Terzis and R. Vidal. Accelerated Corrective Consensus: Convergence to the Exact Average at a Faster Rate. American Control Conference, March 2011.

[105] H. E. Cetingul and R. Vidal. Sparse Riemannian Manifold Clustering for HARDI Segmentation. IEEE International Symposium on Biomedical Imaging, 2011.

[106] J. Li, E. Elhamifar, I-J Wang, and R. Vidal. Consensus with Robustness to Outliers via Distributed Optimization. IEEE Conference on Decision and Control, December 2010.

[107] Y. Chen, R. Tron, A. Terzis and R. Vidal. Corrective Consensus: Converging to the Exact Average.

IEEE Conference on Decision and Control, December 2010.

[108] F. Lauer, G. Bloch and R. Vidal. Nonlinear Hybrid System Identification with Kernel Models. IEEE Conference on Decision and Control, December 2010.

[109] A. Ravichandran, P. Favaro and R. Vidal. A Unified Approach to Segmentation and Categorization of Dynamic Textures. Asian Conference on Computer Vision, November 2010.

[110] E. Elhamifar and R. Vidal. Clustering Disjoint Subspaces via Sparse Representation. IEEE International Conference on Acoustics, Speech, and Signal Processing, March 2010.
Cited by (GS): 43

[111] R. Tron and R. Vidal. “Distributed Image-Based 3-D Localization of Camera Sensor Networks”. IEEE Conference on Decision and Control, December 2009.
General Chairs’ Recognition Award for Interactive Papers
Cited by (GS): 58

[112] A. Goh, C. Lenglet, P. Thompson and R. Vidal. “Estimating Orientation Distribution Functions with Probability Density Constraints and Spatial Regularity”. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), September 2009.
AR: 32%

[113] H.E Cetingul, G. Plank, N. Trayanova and R. Vidal. “Stochastic Tractography in 3-D Images via Nonlinear Filtering and Spherical Clustering”. MICCAI Workshop on Probabilistic Models for Medical Image Analysis, September 2009.

[114] E. Elhamifar and R. Vidal. “Distributed Calibration of Camera Sensor Networks”. International Conference on Distributed Smart Cameras, August 2009

[115] F. Lauer, R. Vidal and G. Bloch. "A product-of-errors framework for linear hybrid system identification". IFAC Symposium on System Identification, July 2009.

[116] L. Bako, G. Mercere, R. Vidal and S. Lecoeuche. "Identification of switched linear state space models without dwell time". IFAC Symposium on System Identification, July 2009.

[117] H.E Cetingul, G. Plank, N. Trayanova and R. Vidal. “Robust Tractography of Cardiac Purkinje Fibers through Branchings”. IEEE International Symposium on Biomedical Imaging, June 2009.

[118] A. Goh, C. Lenglet, P. Thompon and R. Vidal. "A Nonparametric Riemannian Framework for Processing High Angular Resolution Diffusion Images (HARDI)". IEEE International Conference on Computer Vision and Pattern Recognition, June 2009.
AR: 4.1%

[119] R. Chaudhry, A. Ravichandran, G. Hager and R. Vidal. "Histograms of Oriented Optical Flow and Binet-Cauchy Kernels on Nonlinear Dynamical Systems for the Recognition of Human Actions." IEEE International Conference on Computer Vision and Pattern Recognition, June 2009.
AR: 26.2%
Cited by (GS): 215

[120] D. Singaraju, L. Grady and R. Vidal. "P-Brush: Continuous Valued MRFs with Pairwise Normed Distributions for Image Segmentation." IEEE International Conference on Computer Vision and Pattern Recognition, June 2009.
AR: 26.2%

[121] E. Elhamifar and R. Vidal. "Sparse Subspace Clustering". IEEE International Conference on Computer Vision and Pattern Recognition, June 2009.
AR: 26.2%
Cited by (GS): 416

[122] A. Ravichandran, R. Chaudhry and R. Vidal. "View-Invariant Dynamic Texture Recognition using a Bag of Dynamical Systems". IEEE International Conference on Computer Vision and Pattern Recognition, June 2009.
AR: 26.2%
Cited by (GS): 64

[123] H.E. Cetingul and R. Vidal. "Intrinsic Mean Shift for Clustering on Stiefel and Grassmann Manifolds". IEEE International Conference on Computer Vision and Pattern Recognition, June

2009.
AR: 26.2%

[124] E. Elhamifar, M. Petreczky, and R. Vidal. Observability of switched linear systems with inputs. In American Control Conference, April 2009.

[125] R. Tron and R. Vidal. “Distributed Face Recognition via Consensus on SE(3).” Workshop on Omnidirectional Vision, October 2008

[126] R. Hartley and R. Vidal. "Perspective Nonrigid Shape and Motion Recovery". European Conference on Computer Vision, October 2008
AR: 27.9%
Cited by (GS): 56

[127] A. Ravichandran and R. Vidal. “Video Registration Using Dynamic Textures”. European Conference on Computer Vision, October 2008
AR: 27.9%

[128] A. Goh and R. Vidal. “Segmenting Fiber Bundles in Diffusion Tensor Images". European Conference on Computer Vision, October 2008
AR: 27.9%

[129] A. Goh and R. Vidal. "Unsupervised Riemannian Clustering of Probability Density Functions". European Conference on Machine Learning, October 2008
AR: 20%

[130] R. Tron, R. Vidal, and A. Terzis. “Distributed Pose Averaging in Camera Sensor Networks via Consensus on SE(3)”. International Conference on Distributed Smart Cameras, September 2008
Cited by (GS): 67

[131] A. Goh and R. Vidal. “Clustering and Dimensionality Reduction on Riemannian Manifolds.” IEEE International Conference on Computer Vision and Pattern Recognition, June 2008.
AR: 31.9%
Cited by (GS): 52

[132] D. Singaraju and R. Vidal. “Interactive Image Matting for Multiple Layers”. IEEE International Conference on Computer Vision and Pattern Recognition, June 2008
AR: 31.9%

[133] D. Singaraju, L. Grady and R. Vidal. Interactive Image Segmentation Via Minimization of Quadratic Energies on Directed Graphs. IEEE International Conference on Computer Vision and Pattern Recognition, June 2008
AR: 31.9%

[134] S. Rao, R. Tron, R. Vidal and Y. Ma. Motion Segmentation via Robust Subspace Separation in the Presence of Outlying, Incomplete, or Corrupted Trajectories. IEEE International Conference on Computer Vision and Pattern Recognition, June 2008
AR: 31.9%
Cited by (GS): 141

[135] H.E. Cetingul, R. Vidal, G. Plank and N. Trayanova. "Nonlinear Steerable Templates for Extracting Orientation and Tracing Tubular Structures in Medical Images". *International Symposium on Biomedical Imaging,* May, 2008

[136] M. Petreczky and R. Vidal. "Realization of Discrete-Time Semi-Algebraic Hybrid Systems". In Hybrid Systems Computation and Control, April 2008

[137] L. Bako and R. Vidal. “Identification of MIMO Switched ARX Models”. In Hybrid Systems Computation and Control, April 2008

[138] M. Petreczky and R. Vidal. "Realization Theory of Stochastic Jump-Markov Linear Systems". Conference on Decision and Control, December 2007

[139] R. Vidal. "Identification of Spatial-Temporal Hybrid Systems". IEEE Conference on Decision and Control, December 2007

[140] R. Vidal and P. Favaro. DynamicBoost: Boosting Time Series Generated by Dynamical Systems. IEEE International Conference on Computer Vision, October 2007
AR: 23.6%

[141] A. Ravichandran and R. Vidal. Mosaicing Nonrigid Dynamical Scenes. International Workshop on Dynamical Vision, October 2007.

[142] H.E. Cetingul, R. Chaudhry and R. Vidal. A System Theoretic Approach to Synthesis and Classification of Lip Articulation. International Workshop on Dynamical Vision, October 2007.

[143] R. Vidal, S. Soatto and A. Chiuso. Applications of Hybrid System Identification in Computer Vision. European Control Conference, July 2007.

[144] R. Tron and R. Vidal. A Benchmark for the Comparison of 3-D Motion Segmentation Algorithms. IEEE International Conference on Computer Vision and Pattern Recognition, June 2007
AR: 4.8%
Cited by (GS): 277

[145] T. Li, V. Khallem, D. Singaraju, and R. Vidal. Projective Factorization of Multiple Rigid-Body Motions. IEEE International Conference on Computer Vision and Pattern Recognition, June 2007
AR: 4.8%

[146] A. Goh and R. Vidal. Segmenting Motions of Different Types by Unsupervised Manifold Clustering. IEEE International Conference on Computer Vision and Pattern Recognition, June 2007
AR: 28.2%
Cited by (GS): 84

[147] A. Ghoreyshi and R. Vidal. Epicardial Segmentation in Dynamic Cardiac MR Sequences Using Priors on Shape, Intensity, and Dynamics, in a Level Set Framework. IEEE International Symposium on Biomedical Imaging, April 2007

[148] M. Petreczky and R. Vidal. Metrics and Topology for Nonlinear and Hybrid Systems. In Hybrid Systems Computation and Control, April 2007

[149] R. Vidal. Online Clustering of Moving Hyperplanes. Neural Information and Processing Systems (NIPS), December 2006
AR: 24%

[150] L. Lu and R. Vidal. *Combined Central and Subspace Clustering for Computer Vision Applications*. International Conference on Machine Learning, pages 593–600, June 2006
AR: 20%

[151] A. Ghoreyshi and R. Vidal. *Segmenting Dynamic Textures with Ising Descriptors, ARX Models and Level Sets.* International Workshop on Dynamical Vision, pages 127-141, LNCS 4358, Springer Verlag, May 2006

[152] D. Singaraju and R. Vidal. *Direct Segmentation of Multiple Motion Models of Different Types.* International Workshop on Dynamical Vision, pages 18-33, LNCS 4358, Springer Verlag, May 2006

[153] R. Vidal and D. Abretske. Nonrigid Shape & Motion from Multiple Perspective Views. European Conference on Computer Vision, pages 205-218, LNCS 3952, Springer Verlag, May 2006
AR: 21.4%

[154] A. Goh and R. Vidal. The Diffusion Tensor Constancy Constraint and its Application to Affine DTI Registration. European Conference on Computer Vision, pages 514-525, LNCS 3953, Springer Verlag, May 2006
AR: 21.4%

[155] A. Ravichandran, R. Vidal and H. Halperin. Segmenting a Beating Heart Using PolySegment and Spatial GPCA. IEEE International Symposium on Biomedical Imaging, pages 634-637, April 2006

[156] A. Goh and R. Vidal. *An Algebraic Approach to Rigid Registration of Diffusion Tensor Images*. IEEE International Symposium on Biomedical Imaging, pages 642-645, April 2006

[157] D. Singaraju and R. Vidal. *A Bottom Up Algebraic Approach to Motion Segmentation*. Asian Conference on Computer Vision, volume 1, pages 286-296, January 2006

[158] Y. Hashambhoy and R. Vidal. *Recursive Identification of Switched ARX Models with Unknown Number of Models and Unknown Orders*. IEEE Conference on Decision and Control, pages 6115-6121, December 2005

[159] X. Fan and R. Vidal. *The Space of Multibody Fundamental Matrices: Rank Geometry and Projection*. International Workshop on Dynamical Vision, pages 1-17, LNCS 4358, Springer Verlag, October 2005

[160] R. Vidal and A. Ravichandran. *Optical Flow Estimation and Segmentation of Multiple Moving Dynamic Textures*. IEEE International Conference on Computer Vision and Pattern Recognition, volume 2, pages 516-521, June 2005
AR: 6.5%
Cited by (GS): 80

[161] R. Vidal and D. Singaraju. *A Closed-Form Solution to Direct Motion Segmentation*. Accepted for oral presentation at the IEEE International Conference on Computer Vision and Pattern Recognition, volume 2, pages 510-515, June 2005
AR: 6.5%

[162] R. Vidal. *Multi-Subspace Methods for Motion Segmentation from Affine, Perspective and Central Panoramic Cameras*. IEEE International Conference on Robotics and Automation, 2005

[163] Y. Ma and R. Vidal. *Identification of Deterministic Switched ARX Models via the Identification of Algebraic Varieties*. In Hybrid Systems Computation and Control, pages 449-465, 2005
Cited by (GS): 64

[164] Juloski, M. Heemels, G. Ferrari-Trecate, R. Vidal, S. Paoletti and H. Niessen. *Comparison of Four Procedures for the Identification of Hybrid Systems.* In Hybrid Systems Computation and Control 2005, pages 354-369
Cited by (GS): 109

[165] R. Vidal and B.D.O. Anderson. *Recursive Identification of Switched ARX Hybrid Models: Exponential Convergence and Persistence of Excitation*. IEEE Conference on Decision and Control, volume 1, pages 32-27, December 2004

[166] D. Mery, F. Ochoa, R. Vidal. *Tracking of Points in a Calibrated and Noisy Image Sequence*. International Conference on Image Analysis and Recognition, pages 647-654, October 2004

[167] R. Vidal and R. Hartley. *Motion Segmentation with Missing Data using PowerFactorization and GPCA.* IEEE Conference on Computer Vision and Pattern Recognition, volume 2, pages 310-316, June 2004
AR: 6.2%
Cited by (GS): 173

[168] R. Vidal and Y. Ma and J. Piazzi. *A New GPCA Algorithm for Clustering Subspaces by Fitting, Differentiating and Dividing Polynomials*. IEEE Conference on Computer Vision and Pattern Recognition, volume 1, pages 510-517, June 2004
AR: 6.2%
Cited by (GS): 84

[169] R. Hartley and R. Vidal. *The Multibody Trifocal Tensor: Motion Segmentation from 3 Perspective Views*. IEEE Conference on Computer Vision and Pattern Recognition, volume 1, pages 769-775, June 2004
AR: 29.8%

[170] K. Huang, Y. Ma and R. Vidal. *Minimum Effective Dimension for Mixtures of Subspaces: A Robust GPCA Algorithm and its Applications*. IEEE Conference on Computer Vision and Pattern Recognition, volume 2, pages 631-638, June 2004
AR: 29.8%
Cited by (GS): 42

[171] R. Vidal. *Identification of PWARX Hybrid Models with Unknown and Possibly Different Orders*. IEEE American Conference on Control, pages 547-552, June 2004
Cited by (GS): 47

[172] R. Vidal and Y. Ma. *A Unified Algebraic Approach to 2-D and 3-D Motion Segmentation*. European Conference on Computer Vision, pages 1-15, May 2004. **Best Paper Award Honorable Mention**
AR: 7.4%
Cited by (GS): 120

[173] R. Vidal, S. Soatto and S. Sastry. *An Algebraic Geometric Approach to the Identification of a Class of Linear Hybrid Systems*. IEEE Conference on Decision and Control, December 2003
Cited by (GS): 207

[174] N. Cowan, O. Shakernia, R. Vidal, S. Sastry. *Vision-based Follow-the-Leader*. IEEE Conference on Intelligent Robotic Systems, pages 1796-1801, December 2003
Cited by (GS): 62

[175] R. Vidal, O. Shakernia and S. Sastry. *Formation Control of Nonholonomic Mobile Robots with Omnidirectional Visual Servoing and Motion Segmentation*. IEEE International Conference on Robotics and Automation, September 2003
Cited by (GS): 156

[176] Shakernia, R. Vidal and S. Sastry. *Multibody Motion Estimation and Segmentation from Multiple Central Panoramic Views*. IEEE International Conference on Robotics and Automation, September 2003

[177] R. Vidal, Y. Ma and S. Sastry. *Generalized Principal Component Analysis (GPCA)*. IEEE Conference on Computer Vision and Pattern Recognition, pages 621-628, June 2003.
AR: 6.6%
Cited by (GS): 151

[178] R. Vidal and S. Sastry. Optimal *Segmentation of Dynamic Scenes from Two Perspective Views*. IEEE Conference on Computer Vision and Pattern Recognition, volume 2, pages 281-286, June 2003.
AR: 6.6%

[179] O. Shakernia, R. Vidal and S. Sastry. *Structure from small baseline motion with central panoramic cameras*. CVPR Workshop on Omnidirectional Vision, OMNIVIS'03, June 2003

[180] O. Shakernia, R. Vidal and S. Sastry. *Omnidirectional vision-based egomotion estimation from backprojection flow.* CVPR Workshop on Omnidirectional Vision, OMNIVIS'03, June 2003

[181] R. Vidal, A. Chiuso, S. Soatto and S. Sastry. *Observability of Linear Hybrid Systems*. In Hybrid Systems: Computation and Control, Lecture Notes in Computer Science 2623, pages 526-539. Springer Verlag. March 2003.
Cited by (GS): 194

[182] R. Vidal, A. Chiuso and S. Soatto. *Observability and Identifiability of Jump Linear Systems*. IEEE International Conference on Decision and Control, pages 3614-3619, December 2002.
Cited by (GS): 146

[183] R. Vidal and S. Sastry. *Segmentation of Dynamic Scenes from Image Intensities*. IEEE Workshop on Vision and Motion Computing, pages 44-49, December 2002.

[184] O. Shakernia, R. Vidal and S. Sastry. *Infinitesimal Motion Estimation from Multiple Central Panoramic Views*. IEEE Workshop on Vision and Motion Computing, pages 229-234, December 2002.

[185] R. Vidal, S. Soatto and S. Sastry. *A Factorization Method for Multibody Motion Estimation and Segmentation*. Annual Allerton Conference on Communication, Control and Computing, pages 1625-1634, October 2002.

[186] R. Vidal, O. Shakernia and S. Sastry. *Omnidirectional Vision-Based Formation Control*. Annual Allerton Conference on Communication, Control and Computing, pages 1637-1646, October 2002.

[187] R. Vidal and S. Sastry. *Vision-based detection of autonomous vehicles for pursuit-evasion games*. IFAC World Congress on Automatic Control, July 2002.

[188] R. Vidal, S. Soatto, Y. Ma and S. Sastry. *Segmentation of Dynamic Scenes from the Multibody Fundamental Matrix*. ECCV Workshop on Vision and Modeling of Dynamic Scenes, May 2002.
Cited by (GS): 55

[189] R. Vidal and J. Oliensis. *Structure from Planar Motions with Small Baselines*. European Conference on Computer Vision, Lecture Notes on Computer Science 2351, volume 2, pages 383-398, May 2002.
AR: 37.6%

[190] Shakernia, R. Vidal, C. Sharp, Y. Ma and S. Sastry. *Multiple View Motion Estimation and Control for Landing an Unmanned Aerial Vehicle*. IEEE International Conference on Robotics and Automation, volume3, pages 2793-2798, May 2002.
Cited by (GS): 146

[191] R. Vidal, S. Schaffert, O. Shakernia, J. Lygeros and S. Sastry. *Decidable and Semi-decidable Controller Synthesis for Classes of Discrete Time Hybrid Systems*. IEEE Conference on Decision and Control, pages 1243-1248, Orlando, December 2001.

[192] J. Kim, R. Vidal, H. Shim O. Shakernia and S. Sastry. *A Hierarchical Approach to Probabilistic Pursuit Evasion Games with Unmanned Ground and Aerial Vehicles*. 40th IEEE Conference on Decision and Control, pages 634-639, Orlando, December 2001.
Cited by (GS): 64

[193] R. Vidal, Y. Ma, S. Hsu and S. Sastry. *Optimal Motion Estimation from Multiview Normalized Epipolar Constraint*. International Conference on Computer Vision, volume 1, pages 34-41, July 2001
AR: 7.6%

[194] R. Vidal, S. Rashid, C. Sharp, O. Shakernia, J. Kim and S. Sastry. *Pursuit-Evasion Games with Unmanned Ground and Aerial Vehicles.* International Conference on Robotics and Automation, volume 3, pages 2948-2955, May 2001.
Cited by (GS): 61

[195] Y. Ma, R. Vidal, J. Kosecka and S. Sastry. *Kruppa's Equations Revisited: its Degeneracy, Renormalization and Relations to Chirality*. European Conference on Computer Vision EECV, volume 2, pages 561-577, July 2000.
AR: 30%
Cited by (GS): 46

[196] R. Vidal, S. Schaffert, J. Lygeros and S. Sastry. *Controlled Invariance of Discrete Time Systems. In Hybrid Systems: Computation and Control*, volume 1790 of Lecture Notes in Computer Science, pages 437-450. Springer Verlag, 2000.
Cited by (GS): 46

[197] R. Vidal and A. Cipriano. *A Robotic Classifier of Rocks: an Integration of Artificial Vision and Robotics.* 5th IFAC Workshop on Algorithms and Architectures for Real-Time Control AARTC'98, pages 120-125, April 1998.

[198] R. Vidal and A. Cipriano. *System for Classifying Rocks by using Artificial Vision and a Robot Arm*. IEEE International Symposium on Industrial Electronics ISIE'97, volume 2, pages 729-734, Guimaraes, July 1997.

[199] R. Vidal and A. Cipriano. *The Scorbot ER VII Robot Arm: Description and Applications*. Chilean Congress on Automatic Control, pages 17-22, November 1996. (In Spanish).

[200] A. Cipriano, M. Ramos, R. Vidal and Domingo Mery. *Parallel Processing Systems and their Application to Economic Dispatch with Environmental Constraints*. Latin-American Congress on Automatic Control, pages 115-121, September 1996. (In Spanish).

Invited Papers

[201] R. Vidal, S. Sastry, J. Kim, O. Shakernia, and D. Shim. "The Berkeley Aerial Robot Project (BEAR)". Workshop on Aerial Robotics, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 1-10, December 2002.

Thesis

[202] R. Vidal. Generalized Principal Component Analysis (GPCA): an Algebraic Geometric Approach to Subspace Clustering and Motion Segmentation. PhD Thesis, Electrical Engineering and Computer Sciences, University of California at Berkeley, August 2003.

Award: 2003 Eli Jury Award for outstanding achievement in the area of Systems, Communications, Control or Signal Processing
Award: 2004 Sakrison Memorial Prize for "completing an exceptionally documented piece of research".

[203] R. Vidal. Controlled Invariance of Discrete Time Hybrid Systems. M.S. Thesis, Electrical Engineering and Computer Sciences, University of California at Berkeley, May 2000

[204] R. Vidal. *Control of a Robot Arm using Fuzzy Logic and Image Processing*. M.S. Thesis, Electrical Engineering, Catholic University of Chile, August 1997

Patents

[205] H.E. Cetingul, Huseyin Tek, and R. Vidal. A Multiscale Orientation Detector for Analyzing Local Topology of Tubular Structures, US Patent 2009E16562US, 2009 (Pending)

[206] A. Ravichandran, R. Vidal. “Registering Video Sequences Using Linear Dynamical Systems”, US Patent 20100260439, 2010

[207] D. Singaraju, L. Grady, R. Vidal. “System and Method for Image Segmentation using Continuous Valued MRFs with Normed Pairwise Distributions”, US Patent 20100104186, 2010