Curriculum Vitae of Prof. Rama Chellappa

Personal Information

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Chellappa, Ramalingam
Rm # 4411 A.V. Williams Building
Department of Electrical and Computer Engineering
and Center for Automation Research
University of Maryland
College Park, MD 20742
Tel # (301) 405-4526
e-mail:rama@umiacs.umd.edu
http://www.umiacs.umd.edu/~rama/

Academic Appointments at UMD

1991 - Present Professor
Department of Electrical and Computer Engineering,
Member, UMIACS
Affiliate Professr, Department of Computer Science,
Applied Mathematics &Statistics and Scientific Computation
University of Maryland
College Park, MD 20742

2001 – Present Permanent Member
UMIACS

2005 – Present Minta Martin Professor of Engineering

2016 – Present Distinguished University Professor

Administrative Appointments at UMD

1992 - 2001: Associate Director
Center for Automation Research,
University of Maryland
College Park, MD 20742.

2001- 2012 Director
Center for Automation Research,
Permanent Member, UMIACS
University of Maryland
College Park, MD 20742.

2011 - 2012 Interim Chair
ECE Department
University of Maryland
College Park, MD 20742.

2012 – 2018 Chair
ECE Department
University of Maryland
College Park, MD 20742.

Other Employment

1977-1981: Research Assistant and Instructor
School of Electrical Engineering
Purdue University
W. Lafayette, Indiana 47907.

1979 -1981: Research Assistant and Faculty Research Assistant
Center for Automation Research
University of Maryland
College Park, MD 20742.

1981- 1991 Assistant, Associate Professor
Department of Electrical Engineering Systems
University of Southern California
Los Angeles, CA 90089

1988-90: Director
Signal and Image Processing Institute
Department of Electrical Engineering - Systems
University of Southern California
Los Angeles, CA 90089

Educational Background

B.E (Honors) 1975
University of Madras, Madras, India

M.E. (Distinction) 1977
Electrical Communication Engineering
Indian Institute of Science
Bangalore, India

M.S.E.E Electrical Engineering, 1978
Purdue University

Ph.D.	Electrical Engineering, 1981 Purdue University
Thesis Advisor:	Stochastic Models for Image Analysis and Processing Professors R.L. Kashyap School of Electrical Engineering Purdue University West Lafayette, Indiana 47907

Research Interests

Computer vision, pattern recognition, machine learning, signal and image processing, artificial intelligence.

Research Awards and Honors

- H-index 107, Google Scholar Citations: 59,807
- Fellow of IEEE (1992), IAPR (1996), OSA (2008), AAAS (2011), ACM (2013) and AAAI (2014).
- Recipient of National Scholarship awarded by Government of India during the period 1969-1975.
- Secured first rank in Bachelor of Engineering (Honors), University of Madras, Madras, India in 1975; Was presented the Jawaharlal Nehru Memorial award, by the Department of Education, Government of India, through Madras University, India in 1975; Was awarded a Gold medal and $125 by the Old Boy's Association of College of Engineering, Guindy, Madras, India in 1975.
- NSF Presidential Young Investigator Award, 1985.
- Four NASA Certificates for SAR Segmentation Using Imaging Physics and Markov Random Fields (with E.J. Rignot).
- Best industry-related paper award, International Conf. on Pattern Recognition, The Hague, Netherlands, August 1992 (with Q. Zheng)
- Distinguished Research Faculty Fellow, University of Maryland, 1996-1998
- IEEE Signal Processing Society Technical Achievement Award, 2001.
- Minta Martin Professor of Engineering, 2005-Present.
- Co-author of Best student paper award, International Conference on Pattern Recognition, Hong Kong, August 2006 (with A. Sundaresan).
- Outstanding Innovator of the Year Award (Information Science), Office of Technology Commercialization, University of Maryland, 2007 (with A. Sundaresan)
- A.J. Clark School of Engineering Faculty Outstanding Research Award, 2007.

- Technical Achievement Award, IEEE Computer Society, 2008.
- IEEE Signal Processing Society Award, 2009 given at ICASSP, March 2010.
- Outstanding Electrical and Computer Engineer, Purdue University, September 2010.
- K.S. Fu Prize from the International Association of Pattern Recognition, November 2012**.**
- Outstanding Innovator of the Year Award (Information Science), Office of Technology Commercialization, University of Maryland, 2015 (with R. Ranjan and V.M Patel)
- Distinguished Alumni, Indian Institute of Science, Bangalore, September 2016 -
- Distinguished University Professor, University of Maryland, Sept. 2016 –
- IEEE Biometrics Council Inaugural Leadership Award, 2016.
- Outstanding Innovator of the Year Award (Information Science), Office of Technology Commercialization, University of Maryland, 2018 (with R. Ranjan and C. Castillo)

Teaching Awards

- Excellence in Teaching Award, School of Engineering, University of Southern California, 1990.
- Distinguished Scholar-Teacher Award, University of Maryland, 2003.
- Distinguished Lecturer, IEEE Signal Processing Society, 2008-2010.
- Outstanding Mentor, UMD GEMSTONE program, 2009.
- Poole and Kent Teaching Award for Senior Faculty, Clark School of Engineering, 2011.

Service Awards and Honors

- Meritorious Service Award, IEEE Computer Society, 2004.
- Meritorious Service Award, IEEE Signal Processing Society, 2007.

Sponsored Research
Grants

1. *NSF*, Principal Investigator, *Maximum Likelihood Estimation in Stationary Random Fields*, 05/01/82 - 04/31/84, $48,000. (Research Initiation Grant)

2. USC, Principal Investigator, *Algorithms for Image Classification*, 07/01/83 - 06/31/84, $19,535.

3. *NSF*, Co-Principal Investigator, *Estimation of Intramuscular Potentials Using Surface EMG Signal Analysis*, 07/01/84 - 06/30/87, $261,460. (G.A. Bekey, Principal Investigator)

4. *NSF*, PRESIDENTIAL YOUNG INVESTIGATOR AWARD, Principal Investigator *Research in Signal Processing*, 07/01/85 - 08/31/90, $312,500.

5. *NSF*, Principal Investigator, *Modern 2-D Spectral Estimation with Applications in Image Processing*, 06/01/85 - 11/30/87, $20,274.

6. *ONR*, Principal Investigator, *Modern High Resolution Two-Dimensional Spectral Estimation*, 06/01/86 - 12/31/88, $146,85.

7. *AFOSR*, Principal Investigator, Research Instrumentation for Computer Vision, Image Understanding, and Optical Symbolic Computing, $150,666, with A.A. Sawchuk.

8. *NSF*, Principal Investigator, Estimation of Kinematics and Structure of a 3-D Rigid Object from a Sequence of Noisy Images, 01/01/88 - 12/31/89, $177,915.

9. *ONR*, Principal Investigator, Robust Methods for Planar Array Processing, 01/01//89 - 12/31/91, $191,270.

10. *NSF*, Senior Investigator, VISCOM: A Multiprocessor System for Image-Vision processing and Neural Network Computing, 07/01/89-06/30/90, $500,000 (K. Hwang, Principal Investigator).

11. *NSF*, Co-Principal Investigator, Workshop on Theory and Applications of Markov Random Fields for Signal and Image Processing, and Computer Vision, 04/01/89 - 03/31/90, $15,000. (with A. K Jain, Principal Investigator)

12. *NSF*, Principal Investigator, Representation and Recovery of Discontinuities in some Image Processing Problems, 10/01/91 - 03/31/93, $132,169.

13. *AFOSR*, Principal Investigator, Segmentation of Multi-frequency, Multi-look and Multi-polarimetric SAR Data, 02/01/92 - 01/31/95, $193,000.

14. *NSF*, Co-Principal Investigator, High Performance Computing for Land Cover Dynamics, 10/01/93-09/30/98. $3,000,000 with L. S. Davis, (Principal Investigator) J. Townsend, J.Ja'Ja, N. Roussopoulos, J. Saltz and H. Samet.

15. ARO/AASERT, Principal Investigator, Model Supported Positioning of SAR Images, 07/01/96-06/30/99, $104,000.

16. AFOSR/AASERT, Principal Investigator, Non-cooperative Target Identification, 07/01/96-06/30/99, $104,000

17. NSF, Principal Investigator, Multi-camera Based Tracking of Humans, $ 150,000, 09/01/02 – 08/31/04, with L.S. Davis.

18. NSF, Principal Investigator, ITR: New Technology for Capture, Analysis and Visualization of Human Movement Using Distributed Cameras, $ 2,560,000 09/15/03-09/14/09, with T. Andriacchi (Stanford) and C. Bregler (NYU).

19. NSF, Co-Principal Investigator, ITR: Distributed Smart Cameras: Algorithms, Architectures and Synthesis, 09/30/03 - 09/29/09, $ 1,650, 000 with S. Bhattacharya (Principal Investigator) and W. Wolf (Princeton).

Contracts

1. *Hughes Aircraft Company*, Principal Investigator, *Analysis of Segmentation Errors Due to Spatial* Sampling, 10/01/84 - 02/31/85, $10,000.

2. *Joint Services Electronics Program*, Senior Investigator, *Research in Computer Vision*, 04/01/85 - 03/31/88, $160,305. (W.H. Steier, Principal Investigator).

3. *AFOSR*, Co-Principal Investigator, *Optical Symbolic Computing Tasks*, 06/01/86 - 05/31/89, $469,626, with B.K. Jenkins (Principal Investigator) and A.A. Sawchuk.

4. *AFOSR/URI*, Senior Investigator, Center for Integration of Optical Computing, 10/01/86 - 09/30/89, $175,000. (W.H. Steier and A.A. Sawchuk, Principal Investigators), Total Grant: $1,900,900.

5. *Joint Services Electronics Program*, Senior Investigator, SAR Image Understanding, 04/01/88 - 03/31/91, $200,000. (W.H. Steier, Principal Investigator)

6. *AFOSR/URI*, Senior Investigator, Center for the Integration of Optical Computing, 10/01/89 - 09/30/92, $280,000, (W.H. Steier and A.A. Sawchuk, Principal Investigators), Total Grant: $3,000,000.

7. *ARPA*, Principal Investigator, Site-Model-Based Image Registration and Change Detection, 07/01/92 - 06/30/95, $750,000 with L.S. Davis and A. Rosenfeld.

8. *ARPA*, Co-Principal Investigator, Integrated Active Vision for UGV RSTA, 07/01/93 - 06/30/96, $335,000, with Y. Aloimonos, L.S. Davis (Principal Investigator) and A. Rosenfeld.

9. *ARPA*, Co-Principal Investigator, Advanced Automatic Target Recognition, 07/15/93 - 01/14/95, $948,622 with L.S. Davis and A. Rosenfeld. (Principal Investigator)

10. ARPA, Principal Investigator, Multi-resolution Processing and Image Understanding for Automatic Target Detection /Recognition identification, 03/01/95 - 05/14/96, $125,000. (subcontract from McDonnell-Douglas Corporation)

11. ARPA/ONR, Co-Principal Investigator, Appearance Based Vision for Complex Environments, 04/01/95-03/31/00, $2,650,000, with L.S. Davis and A. Rosenfeld. (Principal Investigator)

12. ARPA, Principal Investigator, SAR/IR Registration, 02/15/95-07/15/95, $35,000 (subcontract from HNC, Inc)

13. AFSOR, Principal Investigator, Multi-sensor Fusion 10/01/95-05/31/96, $ 35,000 (subcontract from LNK corporation, Inc.)

14. ARL, Principal Investigator, Advanced sensors consortium, $1,850,000, 02/01/1996-05/31/2001 with L.S. Davis and A. Rosenfeld.

15. DARPA, Principal Investigator, Context-Based Temporal Reasoning and Analysis of Vehicular Activities from SAR-EO Images, 01/01/97-02/28/99 $600,000 with L.S. Davis and A. Rosenfeld.

16. DARPA, Principal Investigator, Model-Based Recognition of Targets in Foliage Penetrating SAR Images, 03/01/97-09/30/00, $ 490,000 Subcontractor, DEMACO, Inc.

17. DARPA, Principal Investigator, Advanced Automatic Target Recognition, 05/01/97-01/31/98, $91,000 with L.S. Davis and A. Rosenfeld.

18. DARPA, Principal Investigator, Integrated FOA and Indexing, 02/01/97-01/31/98, $ 70,000, (subcontract from SAIC, as part of MSTAR program)

19. DARPA, Principal Investigator, Activity Monitoring System for Airborne Visual Surveillance, 07/01/98-12/31/00, $ 900,000 (subcontract from SRI International) with L.S. Davis, Y. Aloimonos and A. Rosenfeld.

20. NIJ, Co-Principal Investigator, Real-time Computer Surveillance for Crime Detection, $ 353,870, 09/01/99 - 06/30/01, with L.S. Davis (Principal Investigator)

21. DARPA, Principal Investigator, Human Identification at a Distance, $2,600,000, 08/15/00-12/31/03, with L.S. Davis, Y. Aloimonos and A. Rosenfeld.

22. ARDA/VACE, Co-Principal Investigator, Video Processing and Content Extraction, $ 3, 100,000, 08/01/2000 – 07/31/2007 with Y. Aloimonos, D. Jacobs, D. Doermann and L.S. Davis (Principal Investigator).

23. ONR, Principal Investigator, Stochastic Approaches for Tracking, $ 300,000, 01/01/01-12/31/03.

24. DARPA, Principal Investigator, Human Activity Inference, $ 369,000, 08/01/02-07/31/03, with L.S. Davis.

25. ARL, Principal Investigator, Collaborative Technology Alliance on Advanced Sensors, $ 2,100,000, 07/01/01 –06/30/06, with K.J.R. Liu and S. Bhattacharya.

26. ARL, Principal Investigator, Collaborative Technology Alliance on Advanced Decision Architectures, $ 1, 529, 204, 07/01/01-09/30/09, with V. Subrahmanian.

27. ARL, Co-Principal Investigator, Collaborative Technology Alliance on Robotics, $1,170,000, 07/01/01 – 06/30/03, with L.S. Davis (Principal Investigator)

28. DARPA/SRI, Co-Principal Investigator, Video Verification and Identification 12/01/03-11/30/05, $800,000 with Y. Aloimonos and L.S. Davis (Principal Investigator).

29. DARPA/SAIC, Principal Investigator, Video Verification and Identification, 12/15/03-12/14/05, $300,000.

30. ARO, MURI on The Science of Land Based Target Signatures, (subcontract from GTRI), Principal Investigator, 08/15/2002 – 08/19/2007, $750,000.

31. ARO/MURI on Micro Air Vehicles, Senior Investigator, 07/01/04 – 06/30/09, $ 250,000, I. Chopra (Principal Investigator).

32. ARDA/VACE, Phase11, Video Processing and Content Extraction, Co-Principal Investigator, $1,700,000, 06/01/2004-05/31/2006, with Y. Aloimonos, D. Doermann and L.S. Davis (Principal Investigator).

33. HSARPA/ONR, Co-Principal Investigator, Detection of Unattended Packages, 06/01/2005 – 05/31/2007, $1,000,000, with L.S. Davis (Principal Investigator). Siemens Corporate Research, NJ is a subcontractor.

34. HSARPA/ONR, Co-Principal Investigator, Persistent Tracking, 08/01/05-07/31/07, $300,000, with L.S. Davis (Principal Investigator). Subcontract from Honeywell.

35. DoD, Co-Principal Investigator, Joint Institute for Knowledge Discovery, 10/01/04-09/30/05, $ 1,500,000 with V. Subrahmanian (Principal Investigator).

36. DIA/MASINT, Principal Investigator, Distributed Tracking, 09/01/05 – 05/31/06, $ 57, 000. with A. Srivastava.

37. UNISYS, Principal Investigator, Illumination-invariant Face Recognition, 07/01/06 – 08/14/07, $ 66, 000.

38. DARPA, Co-Principal Investigator, Flexiview, 08/15/07 – 12/31/07, $ 483, 000, with L.S. Davis and A. Varshney (Principal Investigator)

39. NIST, Principal Investigator, Lane Detection in Day and Night Video, 06/01/07-12/31/08, $ 125, 000.

40. UNISYS, Principal Investigator, 3D Aging of Faces, 08/15/2007 – 08/14/08, $ 50, 000.

41. NSP/SRI, Subcontractor, Video – based Face Recognition, 12/31/07 – 06/30/08, $ 35, 000.

42. ONR, MURI, Principal Investigator, Remote Biometrics for Maritime Domains, 06/01/08 – 12/31/13, $ 7, 500, 000.

43. DARPA, Co-Principal Investigator, VIRAT, 02/01/09 – 01/31/12, $ 900, 000, with L.S. Davis (Principal Investigator). Subcontract from KitWare, Inc.

44. ARL, Principal Investigator, Multi-camera Pan-Tilt-Zoom Tracking, 09/10/07 – 12/31/08, $ 120, 000 (with L. S. Davis and D. Doermann)

45. Northrop-Grumman, Principal Investigator, Fellowships, 12/08/08 -12/07/09, $ 100, 000 (with L.S. Davis)

46. APL, Principal Investigator, Tracking in a Crowd, 01/14/08 – 08/31/09, $ 70, 000

47. APL, Principal Investigator, Face Recognition in Hyperspectral Video, 04/01/09 -08/31/09, $ 20, 000.

48. ONR, Co-Principal Investigator, An Integrated Approach for Surveillance, 04/10/08 - 04/09/11, $ 990, 000. Larry Davis, Principal Investigator.

49. ONR, Principal Investigator, DURIP: Sensors and Storage for Multi-modal Remote Biometrics, 04/15/09 – 09/30/2010, $ 650, 000.

50. ARO, MURI, Co-Principal Investigator, Opportunistic Sensing for Object and Activity Recognition from Multi-Modal, Multi-Platform Data, 06/01/09 -05/31/14, $ 1, 650, 000. Rich Baraniuk, Principal Investigator.

51. IARPA, Principal Investigator, Robust Face Recognition in Unconstrained Environments, 12/14/09 -12/13/11, $ 1, 334, 000.

52. UNISYS, Principal Investigator, Compressive Sensing Methods for Face Recognition, 08/08/09 -12/01/09, $ 50, 000.

53. ARO, Principal Investigator, Sparsity Inspired Selection and Recognition of Infrared Images, 08/15/09 – 05/14/10, $ 50, 000.

54. JHU/APL, Principal Investigator, Hyperspectral Tracking of faces, 04/03/09 – 09/30/09, $ 20, 000.

55. ONR, Principal Investigator, Compressive Video Acquisition, Fusion and Processing, 09/15/09 – 09/14/10, $ 70, 000. Subcontract from Rice University. Rich Baraniuk, Principal Investigator.

56. ONR, Principal Investigator, Statistical and Semantic approaches for Object, Activity and Intent Recognition, 09/01/2009 – 08/31/2012., $ 990, 000.

57. ONR, MURI, Co-Principal Investigator, Rich Representations with Exposed Semantics for Deep Visual Reasoning, 09/01/10 - -8/31/15, $, 1, 750, 000, Subcontract from CMU. Martial Hebert, Principal Investigator.

58. NIST, Principal Investigator, Robust Face Recognition, 04/01/11 – 03/31/12, $ 150, 000.

59. ARO, DURIP, 08/01/11 -07/31/12. $337, 500.

60. ONR, Principal Investigator, Compressive Sensing for Image Understanding: Human Activity Analysis, 12/01/11 – 11/30/14, $ 840, 287. (ASU and Rice are sub contractors)

61. DARPA, Principal Investigator, Screen Fingerprinting as a Novel Modality for Active Authentication, 05/23/12 – 05/22/13, $ 499, 899. (Univ. of Colorado, Boulder, a sub contractor). Phase II funding, 10/01/13 -9/30/14, $ 533, 000. Phase III funding, 10/01/14 -9/31/16, 1, 573, 716.

62. NIST, Principal Investigator, Robust Face Recognition Using Video Dictionaries & Domain Adaptation Methods, 09/01/2012 - 04/05/2013, $ 99, 000.

63. IRAPA, Principal Investigator, JANUS Program, Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition, 08/04/14 – 09/01/18, $13,682,312.

64. US Army Medical Research Acquisition Activity, Co-Principal Investigator, HandSight: Supporting Everyday Activities through Touch-Vision, 08/10/2014 - 09/29/2017, $ 992, 821. Jon Froehlich, Principal Investigator.

65. IARPA, Principal Investigator, DIVA Program, “Deep Multi-View Video Analytics: Context-driven Activity Detection Using Deep Learning and Domain Adaptation” 09/21/17 – 09/20/21, $13,893,447.

66. ARO, Co-Principal Investigator, MURI on Semantic Information Pursuit for Multimodal Data Analysis, Lead: Rene Vidal, JHU. 07/15/17 – 07/14/20, $ 585,000.

67. DARPA, Co-Principal Investigator, Physical and Semantic Integrity Measures for Media Forensics, 05/16/2016 – 05/15/2020, $999,546, Larry Davis, Principal Investigator.

68. ONR, STTR Program, Principal Investigator, Computational Methods for Dynamic Scene Reconstruction, Lead: STR Research, Boston, MA, 09/20/17 – 12/4/19, $300,000.

Fellowships, Gifts and Other Funded Research
Gifts

1. *IBM*, AT&T, Hughes Aircraft Company, Principal Investigator, *Matching Fund for* Presidential Young *investigator Award*, 07/01/85-06/31/87, $150,000.

2. TRW*/USC*, Principal Investigator, Research in 3-D Motion Estimation, 10/01/86-09/30/87, $15,856.

3. SUN *Microsystems*, Principal Investigator, Matching Equipment Grant for Presidential Young Investigator Award, $17,990.

4. *Powell* Foundation, Co-Principal Investigator, Equipment Proposal for AI Workstation, 01/01/88 - 05/31/88, $20,000, (With A.A. Sawchuk, Principal Investigator)

5. *Hughes* Aircraft *Company*, Principal Investigator, Research in Computer Vision, 06/01/88-05/31/90, $25,000.

6. *AT &T*, Principal Investigator, Image Sequence Analysis, 07/01/88-06/30/90, $143,000.

7. Microsoft, Principal Investigator, Generative Adversarial Networks, $25,000.

8. Northrop Grumman, Machine Learning, $140,000.

Distinguished, Invited, Key note, Plenary Talks (Since 1996)

Invited talks in IMDSP workshop, (1996), ICASSP'97 (expert summary), Norwegian National Conference on Image Processing (May 1997), First Intl. Conf. on Audio-Video Biometric Based Person Authentication (March 1997), NATO ASI on Face Recognition (July 1997), OSA Annual Symposium (Oct. 1998), Real-time Face Recognition Tracking Workshop (2001), NSF Biometrics workshop (July, 2003), EUSIPCO (Sept. 1998), Interagency Biometrics Meeting (Sept. 2003) SPIE, Conf. on Homeland Security (Dec. 2003), Events workshop (2003), First US-European workshop on Micro Air Vehicles (Sept. 2005), Fourth Workshop on Auto ID (Nov. 2005), First Indo-US Workshop Micro Air Vehicles (August 2005), IEEE International Conf. on Image Processing, Atlanta, GA, Oct. 2006, Distinguished talks at CMU, Rutgers and Northwestern in Fall 2006, in UPenn (Feb. 2007), UIC (Nov. 2007), Noblis (Nov. 2007), International Conf. on Image Analysis and Processing, Modena, Italy, 2007, Rice University (Feb. 2008), UT Austin (Feb. 2008), Univ. of Nebraska, Lincoln, (Feb. 2008), First US-Asian workshop on Micro air Vehicles, Agra, India (March 2008), NC State (March 2008), Syracuse University (Nov. 2008), DICTA, Canberra, Australia (Dec. 2008), SCIA, Oslo, Norway (June 2009), BMVC , London, UK (Sept. 2009), Univ. of Florida, Gainesville (March 2010), George McKay Visiting Professor, Univ. of California, Berkeley, April 19-23, 2010, Spencer Lecture, U. of Missouri-St. Louis (May 2010), Automatic Face and Gestures Conference, Santa Barbara, CA (March 2011), The Johns Hopkins University (April 2011), Univ. of Delaware, (May 2011), JHU/Applied Physics Laboratory (May 2011), Brown University, (Oct. 2011), Keynote Speaker, ICCV Workshop on Stochastic Grammars, Barcelona, Spain (Nov. 2011), Keynote speaker, First Asian Conf. on Pattern Recognition, Beijing, (Nov. 2011), Keynote Speaker, BTAS 2012, Washington D.C. (Sept. 2012), Keynote Speaker, ECCV Workshop on Re-Identification of Humans, Florence, Italy (Oct. 2012),

K.S. Fu Prize Lecture at ICPR, Tokyo, Japan, (Nov. 2012), CVPR Workshop on Activity Recognition Using 3D Data, Portland, OR (June 2013), ICCV 2013 Workshop on Visual Domain Adaptation and Dataset Bias, Sydney, Australia (Dec. 2013), Distinguished Lecture, 25th year anniversary celebrations, Hong Kong Baptist University, Hong Kong (March 2014), Mercer lecture, ECSE Dept, RPI (April 2014), Distinguished lecture, EE, EPFL, Switzerland (June 2014), E.I. Jury Lecture, ECE department, Univ. of Miami (Dec. 2014), Banquet Speaker, ISVC 2014, Las Vegas (Dec. 2014), Invited talk at ICCV Workshop, Santiago, Chile, Dec. 2015, Distinguished Lecture, Dept. of ECE, Northwestern University, IL, (April 2015), Three invited talks at CVPR 2016 Workshops, Las Vegas, NV (June 2016), Keynote at the Workshop on Domain Adaptation, Amsterdam, Netherlands, (Oct. 2016), Distinguished Lecture, ECE, NC State, April 2017, ECE-CS Distinguished Colloquium, Duke University, Feb. 2018, Keynote at ShanghaiTech Symposium, July 2018, Keynote at BMVC 2018, Sept. 2018.

Research, Scholarly and Creative Activities

Books Authored

1. *Artificial Neural Networks for Computer Vision*, Y.T. Zhou and R. Chellappa, Springer-Verlag, 1991. ISBN-10: 0387976833, ISBN-13: 978-0387976839.

2. *Recognition of Humans and Their Activities Using Video*, Morgan Claypool, Rama Chellappa, Amit R. Chowdhury and Shaohua Zhou, Morgan & Claypool Publishers, 2005. ISBN-10: 1598290061, ISBN-13: 978-1598290066.

3. *Human Identification Based on Gait*, Springer, Mark Nixon, Tieniu Tan and Rama Chellappa, 2005. ISBN: 978-0-387-29488-9.

4. *Unconstrained Face Recognition*, Springer, Shaohua Zhou and Rama Chellappa, 2005. ISBN: 978-0-387-29486-5.

5. *Statistical Models and Methods for Video-based Tracking and Recognition*, Now Publishers Inc, Rama Chellappa, Aswin Sankaranarayanan, Ashok Veerraghavan and Pavan Turaga, March 2010. ISBN: 978-1-60198-314-5.

6. *Sparse Representations and Compressive Sensing for Imaging and Vision*, Vishal Patel and Rama Chellappa, Springer Briefs in Electrical and Computer Engineering, March 2013. ISBN 978-1-4614-6381-8.

7. *Domain Adaptation for Visual Recognition*, Raghuraman Gopalan, Ruonan Li, Vishal M. Patel and Rama Chellappa , Foundations and Trends in Computer Graphics and Vision: Vol. 8: No. 4, pp 285-378, 2015. http://dx.doi.org/10.1561/0600000057

Books Edited

1. . Markov Random Fields: Theory and Applications, Academic Press, Boston, R. Chellappa and A.K. Jain (eds.), 1993. ISBN-10: 0121706087, ISBN-13: 978-0121706081.

2. Face Processing: Advanced Modeling and Methods, Academic Press, Wenye Zhao and Rama Chellappa (eds.), Academic Press, 2006. ISBN: 978-0-12-088452-0.

3. Academic Press Library in Signal Processing, Volumes 1-5, Sergios Theodoridis and Rama Chellappa (eds.), Academic Press, MA, 2014.

4. *Motion Deblurring: Algorithms and Systems*, A.N. Rajagopalan and Rama Chellappa, Cambridge University press, UK, 2014. ISBN: 9781107044364

Other

1. *Selected Papers and Tutorial in Digital Image Processing and Analysis, Volumes 1 and 2, Digital Image* Processing and Analysis, IEEE Computer Society Press, R. Chellappa and A. A. Sawchuk (eds.), June 1985. ISBN: 0818606665.

2. *Digital Image* Processing *(a collection of papers)*, IEEE Computer Society Press, Ed. R. Chellappa, 1992. ISBN-10: 0818623616, ISBN-13: 9780818623615.

Book Chapters

1. R. Chellappa, "Multiresolution Models for Image Analysis and Processing", in Multi-resolution Image Analysis and Processing, A. Rosenfeld (Ed.), Springer-Verlag, pp. 102-108, 1984.

2. R. Chellappa, "Two-Dimensional Discrete Gauss Markovian Random Field Models for Image Processing", in Progress in Pattern Recognition, Vol. 2, L.N. Kanal and A. Rosenfeld (Eds.), North-Holland, pp. 79-112, 1985.

3. R.T. Frankot and R. Chellappa, A Method for Enforcing Integrability in Shape from Shading Algorithms, in Shape from Shading (eds.), B.K.P. Horn and M.J. Brooks, M.I.T. Press, pp. 89-122, 1989.

4. Y.T. Zhou and R. Chellappa, "Image Restoration", in Neural Networks: Introduction to Theory and Applications, (ed.), B. Kosko, Prentice-Hall, pp. 63-89, 1991.

5. B. S. Manjunath, T. Simchony and R. Chellappa, "Parallel Networks for Texture Segmentation", in Neural Networks: Introduction to Theory and Applications, (ed.), B. Kosko, Prentice-Hall, pp. 37-61, 1991.

6. T. Simchony, R. Chellappa and Z. Lichtestein, “Image Estimation Using 2-D Noncausal Gauss Markov Random Fields”, in Image Restoration, (ed.), A. Katsaggelos, Springer Series in Information Sciences, pp. 109-141, 1991.

7. A. Rangarajan, B.S. Manjunath and R. Chellappa, “Markov Random Fields and Neural Networks with Applications in Early Vision Problems”, in Artificial Neural Networks and Statistical Pattern Recognition: Old and New Connections, (eds.), I.K. Sethi and A.K. Jain, Elsevier Science Publishers, 1991.

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4. J. Li, and R. Chellappa, "A factorization approach for structure from planar motion", IEEE Workshop on Motion and Video Computing, January, 2005.

2004

1. J.B. Broadwater, R. Meth, and R. Chellappa, "Dimensionality Estimation in Hyper-spectral Imagery Using Minimum Description Length," in Proc. of the Army Science Conference 2004 , Orlando, FL, November, 2004.

Centers Directed

Name : Center for Automation Research, University of Maryland, College Park, MD 20742.
2001-2012
Description of Center: The Center for Automation Research (CfAR) at the University of Maryland is a leader in research and education involving computer vision, computer visualization, perceptual interfaces, and language and media processing.
Collaborators: Larry Davis, Ramani Duraiswami, David Jacobs, Hanan Samet, Amitabh Varshney.

Patents

1. A. Roy Chowdhury, R. Chellappa and S. Srinivasan, U. S. Patent 7,184,071, "Method of Three-dimensional Object Reconstruction from a Video Sequence Using a Generic Model", issued Feb. 27, 2007.

2. A. Sundaresan and R. Chellappa, U.S. Patent 8, 023,726, "Method and System for Markerless Motion Capture using Multiple Cameras", issued on September 20, 2011.

3. Y. Ran, Q. Zheng and R. Chellappa, U.S. Patent 8,179,440, "Method and System for Object Surveillance and Real Time Activity Recognition", issued on May 15, 2012.

4. V. Cevher. C. Garbuz, J. McClellan and R. Chellappa, U.S. Patent 8,379, 485 B2, "Compressive Sensing System and Method for Bearing Estimation of Sparse Sources in the Angle Domain, issued on Feb. 2013.

5. D.M. Healy, V.M. Patel, G.R. Easley and R. Chellappa, U.S. Patent 9,291,711, "Compressive Radar Imaging Technology", issued on March 22, 2016.

6. J. K. Pillai, Maria Puertas-Calvo and R. Chellappa, U.S. Patent 9, 530,052 B1, "System and Method for Sensor Adaptation in Iris Biometrics", issued on December 27, 2016.

Doctoral Students Advised

1. Govind Sharma, August 1984, Modern 2-D Spectral Estimation Using Non-causal Models. (Professor, Indian Institute of Technology, Kanpur, India).

2. Paul Singer, May 1985, Machine Perception of Partially Specified Planar Shapes. (Retired, Senior Scientist, Raytheon, Electro-optical Data Systems Group, El Segundo, CA).

3. Hao Jinchi, December 1986, Image Restoration Algorithms Using 2-D Gaussian Markov Random Field Models. (Professor, Military College in Taiwan, R.O.C.).

4. Shankar Chatterjee, July 1987, Synthesis, Analysis and Segmentation of Natural Textures. (Multimedia Company, Hollywood, CA).

5. Robert T. Frankot, December 1987, Computational Vision Algorithms for SAR Imagery. (Retired Senior Staff Engineer, Raytheon Company, Tucson, AZ).

6. Ted J. Broida, December 1987, Estimating the Kinematics and Structure of a Moving Object from a Sequence of Images. (Was a Scientist, Hughes Aircraft Company, Radar Systems Group, El Segundo, CA, and Deceased 08/96.).

7. Tal Simchony, December 1988, Parallel Deterministic and Stochastic Algorithms for Some Computer Vision Problems. (Chief Engineer, ECI Telecom Ltd., Israel).

8. Zhou Yi-Tong, December 1988, Artificial Neural Networks for Some Computer Vision Problems. (Consultant, San Diego, CA)

9. Richard R. Hansen, Jr., December 1988, Parametric Spectrum Estimation for Contaminated Random Fields. (Retired Chief Engineer, Electronic Combat Development Branch, Edwards Airforce Base, CA).

10. Anand Rangarajan, Jan. 1991, Representation and Recovery of Discontinuities in Some Early vision Problems. (Associate Professor, Department of Computer Science, Univ. of Florida, Gainesville).

11. Gason Young, May 1991, 3-D Motion Estimation Using a Sequence Binocular of Noisy Images. (Thomson Electronics, CA).

12. V. Venkateswar, May 1991, Hierarchical Representation, Matching and Search for Some Computer Vision Problems. Was in Texas Instruments. (Co-Founder of a small company in Bay area).

13. E.J.M. Rignot, May 1991, Segmentation of Multifrequency and Polarmetric Synthetic Aperture Radar Data. (Senior Member, Technical Staff, Jet Propulsion Laboratory, Pasadena, CA.)

14. Q. Zheng, August 1991, Robust Algorithms for Estimation of Illuminant and Shape from Shading. (Working in a company in China).

15. B.S. Manjunath, August 1991, Perceptual Grouping and Segmentation Using Neural Networks. (Professor, Department of Electrical and Computer Engineering, University of California, Santa Barbara, CA).

16. S. Chandrashekhar, 1991, 3-D Motion Estimation and Passive Navigation Using a Long Sequence. (Free-lance writer)

17. T.H. Wu, 1993, Estimation of Motion and Structure Using Long Sequences of Noisy Images. (Prodigy, New York).

18. P. Burlina, 1994, Time-to Collision Estimation and Navigation Using Long Sequences. (Technical Staff, Applied Physics Laboratory, MD)

19. O.J. Kwon, 1994, Region Based Coding of Images. (Technical Staff, Samsung Corporation, Korea).

20. S.Z. Der, March 1995, Automatic Target Recognition Using Passive Infrared and Laser Radar Sensors. (The Aerospace Corporation. Washington, D.C)

21. S. Krishnamachari, June 1995, Hierarchical Markov Random Field Models for Image Analysis. (Startup Company, Atlanta, Georgia).

22. Y.S. Yao, September 1995, Electronic Stabilization and Feature Tracking in Long Image Sequences. (Technical Staff, Pacific Bell, San Francisco, CA).

23. H.C. Liu, September 1995, A General Motion Model and Spatio temporal Filters for 3-D Motion Interpretations. (Technical Staff, ETAK Company, Palo Alto, CA)

24. C.L. Lin, Dec. 1995 Model Supported Exploitation of Aerial Images, (Technical Staff, Microsoft Corporation, Seattle, WA) Ph.D. in Computer Science.

25. K. Etemad, May 1996, Multiscale Discriminant Analysis and Recognition of Signals and Images (Technical Staff, Hughes Network Systems, Germantown, MD).

26. C. Morimoto, March 1997, Electronic Image Stabilization, (Associate Professor, Univ. of Sao Paulo, Brazil). Ph.D. in Computer Science.

27. S. Kuttikad, Dec. 1997, Site Models for SAR Image Exploitation. (Technical Staff, ETAK Company, Palo Alto, CA).

28. W. Phillips, March 1998, SAR Image Exploitation (Chief Scientist, Northrop-Grumman, Baltimore, MD).

29. S. Srinivasan, Dec. 1998, Structure from Motion (Technical Staff, Microsoft Corporation, Shanghai, China).

30. R. Meth, Dec. 1998, SAR Feature Extraction and Target Classification. (IARPA, MD).

31. V. Madhav Govindu, Nov. 1999, Probabilistic Models for Motion Estimation (Associate Professor, Electrical Engg. Dept., Indian Inst. of Science, Bangalore, India).

32. M. Srinivasan, August 1999, Video Compression (formerly Flavian, currently with a start up)

33. W Zhao, Dec. 1999, Robust Face Recognition (Technical Staff, Intuit, CA).

34. B. Li, July 2000, Human and Object Verification in Video (Professor, Computer Science Dept, Arizona State University).

35. A. Banerjee, August 2000, Target Detection in Foliage (Technical Staff, Applied Physics Laboratory, MD).

36. H. Moon, August 2001, Shape -Encoded Particle Filtering for Object Detection and Tracking, (Member of Technical Staff, Hughes Research lab, Calabasas, CA).

37. G. Qian, Dec.2001, Robust Methods for Structure From Motion Using Video Sequences, (ObjectVideo Labs, VA).

38. Y. Wexler, December 2000, Projective Geometric Techniques for Video Analysis, (CTO, OrCam, Israel) Ph.D. in Computer Science.

39. A. Roy Chowdhury, June 2002, Structure from motion, (Professor, EE, UC Riverside, CA.)

40. Huying Liu, August 2003, Hierarchical Structure and Movement Estimation, (Member of Technical Staff, DRS, VA) Ph.D. in Computer Science

41. Amit Kale, Nov. 2003, Gait-Based Human Identification, (Siemens Medical Systems, Bangalore, India)

42. V. Parameswaran, April 2004, View Invariants for Activity Modeling and Recognition, (Microsoft Research, Redmond, WA) Ph.D. in Computer Science.

43. Shaohua Kevin Zhou, July 2004 Unconstrained Face Recognition, (Group Leader, Siemens Corporate Research, Princeton, NJ)

44. N. Vaswani, July 2004, Change Detection in Partially Observed Dynamical Systems with Applications in Activity Recognition, (Professor, ECE, Iowa State University)

45. Amit Agrawal, May 2006, (Lab126, Amazon, CA)

46. Jian Li, Dec. 2006, (Technology Associate, Goldman Sachs, New York, NY)

47. Yang Ran, August 2006, (Startup, CA)

48. N. Cuntoor, May 2007, Activity modeling and Recognition, (IAI, Rockville, MD)

49. Seong-Wook Joo, May 2007, Multi-object tracking, event detection and activity modeling, (Google, Mountain View, CA). Ph.D. in Computer Science.

50. Joshua Broadwater, May 2007, Anomaly detection in hyperspectral images, (JHU Applied Physics Laboratory, MD)

51. Feng Guo, August 2007, (Member of technical Staff, Google, Mountain View, CA). Ph.D. in Computer Science.

52. Zhangeng Yue, August 2007, (CTO in a company in China)

53. Aravind Sundaresan, Dec. 2007, (Member of the Staff, SRI International Inc, Menlo Park, CA)

54. Gaurav Aggarwal, Feb. 2008, Illumination-invariant face recognition, (Yahoo, Bangalore, India). Ph.D. in Computer Science.

55. Ashok Veeraraghavan, Aug. 2008, (Associate Professor, ECE, Rice University)

56. Narayanan Ramanathan, Dec. 2008, Face recognition across aging, (ObjectVideo Labs, LLC, VA)

57. Dalton Rosario, Semi-parametric statistical methods for target detection, August 2008, ARL. (Applied Mathematics)

58. Wu Hao, August 2009, Robust methods for visual tracking and model alignment, (Member of Staff, Xerox Corporation, Rochester, NY)

59. Aswin Sankaranarayanan, Sept. 2009, Efficient inference in multi-camera systems, (Assistant Professor, ECE department, CMU, Pittsburgh, PA)

60. Pavan Turaga, October 2009, Statistical and geometric modeling of spatio-temporal patterns for video understanding, (Associate Professor, Media arts and ECE, Arizona State University)

61. Jie Shao, December 2009, Object tracking and mensuration in surveillance videos, Member of Staff, (Google, Inc., Mountain View, CA)

62. Soma Biswas, Dec. 2009, Statistical/Geometric techniques for object representation and recognition, (Assistant Professor, Electrical Engg., Indian Inst. Of Science, Bangalore, India)

63. Mahesh Ramachandran, May 2010, Video Processing with Additional Information, (Member of Technical Staff, Google, Mountain View, CA)

64. Vishal Patel, August 2010, Sparse and Redundant Representations for Inverse Problems and Recognition, (Assistant Professor, ECE, Rutgers, The State University of New Jersey)

65. Mohamed F. Abdelkader, August 2010, Activity Representation from video Using Statistical Models on Shape Manifolds, (Asst. Professor, Suez-Canal University, Egypt).

66. Ruonan Li, August 2011, Segmentation, Recognition and Alignment of Collaborative Group Motion, (Company in Boston, MA)

67. Raghuram Gopalan, August 2011, Model-driven and Data-driven Approaches for some Object Recognition Problems, (Member of Technical Staff, AT&T, CA)

68. Kaushik Mitra, August 2011, Statistical Models and Optimization Algorithms for H-dimensional Computer Vision Problems, (Assistant Professor, Electrical Engineering Department, Indian Institute of Technology, Madras at Chennai, India)

69. Dikpal Reddy, August 2011, Sparse Acquisition and Reconstruction for Some Computer Vision Problems, (Member of Technical Staff, Tinz Optics, Palo Alto, CA)

70. Ming Yu Liu, Dec. 2011, Discrete Optimization Methods for Image Segmentation and Matching, (NVIDIA), CA.

71. Nitesh Shroff, August 2012, Efficient Sensing, Summarization and Classification of Videos, (Member of Technical Staff, Tinz Optics, Palo Alto, CA)

72. Qiang Qiu, January 2013, Sparse Dictionary Learning and Domain Adaptation for Face and Action Recognition, (Assistant Research Scientist, Duke University, Durham, NC). Ph.D. in Computer Science.

73. Jaishankar K Pillai, March 2013, Learning Visual Classifiers from Limited Labeled Images, (Member of Technical Staff, Google, Mountain View, CA).

74. Sima Taheri, August 2013, Subspace Representations for Robust Face and Facial Expression Recognition, (Member of Technical Staff, ObjectVideo Labs, LLC, VA). Ph.D. in Computer Science.

75. Hien Nguyen, August 2013, Non-linear and Sparse Representations for Multi-modal Recognition, (Assistant Professor, Department of Electrical Engineering, University of Houston, TX).

76. Yi-Chen Chen, August 2013, Discriminative Learning and Recognition using Dictionaries, (Returned to Taiwan).

77. Tao Wu, August 2013, Dictionaries and Manifolds for Face recognition across Illumination, Aging and Quantization, (Member of Technical Staff, Google, Inc, Mountain View, CA)

78. Nazre Batool, Dec. 2013, Modeling and Analysis of Wrinkles on Aging Human Faces", (Post doc, INRIA, Sophia-Antipolis, France).

79. Dave Shaw, August 2014, Regularization Methods for High-dimensional Inference, (Post doc, CMU, Pittsburgh, PA). Ph.D. in Applied Mathematics and Scientific Computing.

80. Huy Tho Ho, August 2014, Face Recognition and Facial Semantic Analysis from Unconstrained Visual Data (Apple, Cupertino, CA).

81. Sumit Shekhar, August 2014, Sparse Methods for Robust and Efficient Visual Recognition, (Adobe, Bangalore, India).

82. Garrett Warnell, August 2014, Adaptive Sensing and Processing for Some Computer Vision Problems, (Army Research laboratory, Austin, TX).

83. Ming Du, Dec. 2014, Recognition of Faces from Single and Multi-View Videos, (A9, Palo Alto, CA).

84. Ashish Srivastava, Dec. 2014, Sparse Representation, Discriminative Dictionaries and Projections for Visual Classification, (Apple, Cupertino, CA).

85. Jie Ni, May 2015, Restoration and Domain Adaptation for Unconstrained Face Recognition. (Member of Technical Staff, SONY, CA)

86. Kaustav Nandy, May 2015, Segmentation and Informatics in Multi-dimensions; Fluorescence Optical Microscopy Images, (Scientist, Leidos Corporation, Frederick, MD).

87. Jingjing Zheng, Dec. 2015, Domain Transfer Learning for Object and Action Recognition, (GE Global, Schenectady, NY)

88. Xavier Gibert Serra, May. 2016 (Successfully defended on 11/18/2015, Anomaly Detection in Noisy Images, (Google, Mountain View, CA).

89. Kota Hara, August 2016, Deep Neural Networks and regression Models for Object Detection and Pose estimation, (Apple, Cupertino, CA).

90. Raviteja Vemulapalli, August 2016, Geometric Representations and Deep Gaussian Conditional random Field networks for Computer Vision, August 2016, (Google Research, Seattle, WA).

91. Ching-Hui Chen, Nov. 2016, Face Recognition from Weakly Labeled Data, Dec. 2016 (Member of Technical Staff, Qualcomm, San Diego, CA).

92. Jun-Cheng Chen, Robust Representations for Unconstrained Face Verification and Its Applications, Dec. 2016. (Research associate, University of Maryland) in Computer Science

93. Heng Zhang, Multi-modal Learning and Its Application to Mobile Active Authentication, August 2017. (VMWare, CA).

94. Chris Reale, Multi-modal Approaches to Computer Vision Problems, September 2017. (Draper Labs, MA)

95. Mohammed E. Fathy Salem, Sparse Representations and Feature Learning for Image Set Classification and Correspondence Estimation, May 2018, (Google Research, Mountain View, CA).

96. Maya Kabkab, Learning along the Edge of Neural Networks, May 2018, (Waymo, Mountain View, CA).

97. Emily Hand, Learning Explainable Facial Features from Noisy Unconstrained Visual Data, May 2018, (Asst. Professor, University of Nevada, Reno).

98. Swami Sankaranarayanan, Towards Robust and Adaptive Feature Representations in Deep Learning, August 2018, (Butterfly Network, New York, NY).

99. Pouya Samangouei, Machine Learning of Facial Attributes Using Explainable Secure and Generative Adversarial Networks, August 2018 (Member of Technical Staff, Butterfly Networks, NewYork, NY).

100. Upal Mahbub, Multi-modal Active Authentication of Smartphone Users, August 2018 (Member of Techncial Staff, Qualcomm, San Diego, CA)

Teaching, Mentoring and Advising.

Courses Taught

ENEE 633: Statistical Pattern Recognition, Fall 2005, 2007, 2009, 2011, 2013, 2015, 2017
ENEE 631: Image and Video Processing, Spring 2008, 2011
ENEE 324: Spring 2010
ENEE 698A: Spring 2010, Spring 2014, Spring 2015
ENEE 698Q: Fall 2011, 2013, Spring 2012, 2013, 2014
ENEE 733 Image Understanding, Fall 2006, 2008, 2010, 2012, 2014, 2016
GEMSTONE course: Fall 2006-2015.
ENEE 101, Introduction to ECE, Spring 2017, Fall 2017.

Course or Curriculum Development

Developed graduate courses on Image Processing, Image Understanding and Statistical Pattern Recognition. Co-developed undergraduate course on machine learning.

Advising

Undergraduate

During 2006-2015, I have mentored three GEMSTONE groups. A total of 35 undergraduate students were advised as part of this program. I have also advised a few students as part of the REU program.

Master's

1. C.Y. Lau, 1992 Computation *of Optic Flow and Depth with Known Motion*.

2. G. Cheesman, 1992 Classification *of Millimeter Wave Radar Signatures*.

3. H. Singh, 1992 *An* Improved *Algorithm for Shape form Shading* (Aware Inc, MA).

4. V. Sabio, 1993 Target *Recognition in Ultrawide Band Images* (SAIC, Arlington, VA).

5. S. Sirohey, 1993 *Segmentation and Recognition of Faces* (General Electrical, Chicago)

6. D. Wason, 1994 Enhancement and Minutiae Detection in Fingerprints. (SAIC, VA)

7. R. Parulekar, 1995 Parallel Algorithms for Classification of Remotely Sensed Imagery (Shearson-Lehman).

8. S. Balakrisky, 1995 Performance Characterization of Image Stabilization Algorithms (National Institute of Standards and Technology).

9. C. Stevens, 1997, Enhancement and Matching of Fingerprints (LNK Corporation, MD)

10. H. Mahmood, 1999, Active Vision for LADAR ATR (Wireless Company in S. Carolina)

11. D. Ayers, 2000, Activity Monitoring in Video (SAIC, MD)

12. H. Gupta, 3-D Face Modeling Using Contours, (Object Video, VA)

13. Francesc, Frigole-Roma, Image Stabilization for Unmanned Air Vehicles (Barcelona, Spain)

14. Marty, Ballcells-Capellades, Video Activity Analysis (Barcelona, Spain)

15. T. Yamamoto, 3-D Motion Analysis for Sports Video (Hitachi, Japan)

16. U. Akdemir, Ontology for Activity Modeling (Technical Staff, Siemens Corporate Research, Princeton, NJ. Went back to Turkey)

17. A. Trias, Processing Aerial Images (Engineer, Leidos Corporation, MD)

18. G. Rosenbush, Detection of Unattended Packages Using Attributed Grammars (Digital Signal Corporation, VA)

19. A. Ducao, Leidos Corporation, Columbia, MD.

20. Priyanka Vageeswaran, Blur and Illumination Invariant Face Recognition via Set Theoretic Characterization.

21. Ankit Jain, Watchlist-based Classification System, (Bloomberg, NY).

22. Alex Krishnan Cramer, NASA Goddard, Greenbelt, MD.

Current doctoral students and expected year of graduation

1. Lee Stearns (2018)
2. Emily Hand (2018) Has accepted a positon as an assistant professor in CS, in Univ. of Nevada, Reno.
3. Hui Ding (2019)
4. Swami Sankaranarayanan (2018) Has accepted a positon at Butterfly, NY.
5. Rajeev Ranjan (2018)
6. Amit Kumar (2019)
7. Upal Mahbub (2018) Has accepted a position at Qualcomm.
8. Ankan Bansal (2020)
9. Steve Schwarcz (2021)
10. Joshua Gleason (2021)
11. Arthita Ghosh (2019)
12. Jingxiao Zheng (2019)
13. Hongyu Xu (2018)
14. Boyu Lu (2019)
15. Yogesh Balaji (2021)
16. Wei-An Lin (2010)
17. Ilya Kavalerov (2020)
18. Saketh Rambhatla (2021)
19. Pouya Samgouei (2018)
20. Navaneeth Bodla (2019)
21. Prithviraj Dhar (2022)

Post-doctoral

I have supervised the following post-doctoral researchers.

Q. Zheng, P. Burlina, C. Shekhar, H. Shekarforoosh, V. Kruger, G. Qian, A. Roy Chowdhury, Pavan Turaga, V. Cevher, V.M. Patel, C. Castillo, A. Azadeh and J.C. Chen.

Mentorship

Over the years, I have advised a few junior faculty members.

Served as an advisor to numerous undergraduate students.

Other Advising Activities

Faculty advisor, Student Council of India, University of Maryland, College Park, MD.

Service and Outreach

Editorships, Editorial Boards, and Reviewing Activities

Editorships

Co-Editor-in-Cheif

Computer Vision, Graphics and Image Processing: Graphics Models and Image Processing, Academic Press, 1989-1996

Editor-in-Chief

IEEE Transactions on Pattern Analysis and Machine Intelligence, 2001-2004.

Co - Guest Editor of Special Issues

1. IEEE Transactions on Image Processing Special Issue on Applications of Artificial Neural Networks to Image Processing, August 1998, with K. Fukushima, A.K. Katsaggelos, S.Y. Kung, Y. LeCun, N, Nasrabadi and T. Poggio.

2. International Journal of Computer Vision, Special Issue Based on Best Papers from CVPR 2004, with A. Bobick and L.S. Davis.

3. Proceedings of the IEEE, Special Issue on Biometrics, Nov. 2007, with P. J. Phillips and D. Reynolds.

4. IEEE Transactions on Image Processing, Special issue on Distributed Camera Networks: Sensing, Processing, Communication and Computing, Oct. 2010 with W. Heinzelman, J. Konrad, D. Schonfeld and M. Wolf.

5. International Journal of Computer Vision, Special Issue on Stochastic Image Grammars, June 2011, with S. Todorovic.

6. IEEE Transactions on Circuits and Systems for Video Technology, Special Issue on Video Analysis on Resource-Limited Systems, Oct. 2011, with A. Cavallaro, Y. Wu, C. Shan, Y. Fu and K. Pulli, 2011.

7. IEEE Journal of Special Topics in Signal Processing, Special Issue on Anomalous Pattern Discovery for Spatial, Temporal, Networked, and High-Dimensional Signals, Feb. 2013, with Al Hero, Robert Nowak, Venkatesh Saligrama and Venu Veeravalli,

8. IEEE Trans. on Information Forensics and Security, Special Issue on Intelligent Video Surveillance for Public Security & Personal Privacy, Oct. 2013, with Noboru Babaguchi, Andrea Cavallaro, Frederic Dufaux and Liang Wang.

9. Computer Vision and Image Understanding, Special issue in honor of Prof. Jake Aggarwal, 2012, with Baba Vemuri.

10. International Journal of computer Vision, Special issue on Domain Adaptation, 2014, with Xu Dong, Hal Daume and Trevor Darrell.

Editorial Boards

Associate Editor

IEEE Transactions on Acoustics, Speech, and Signal Processing, 1987-1989

IEEE Transactions on Neural Networks, 1991-1992

IEEE Transactions on Image Processing, 1992-1994

IEEE Transactions on Pattern Analysis and Machine Intelligence, 1996-1999

Computer Vision and Image Understanding, 2011-2013.

Image and Vision Computing, 2011 –

SIAM Jl. Of Imaging Science, 2013 –

Reviewing Activities for Journals and Presses

IEEE Transactions on Information Theory, Pattern Analysis and Intelligence, Signal Processing, Biomedical Engineering, Geoscience and Remote Sensing, Neural Networks, Image Processing, Information Security and Forensics, Systems, Man, Cybernetics, and Circuits and Systems, Proceedings of the IEEE, Computer Vision Graphics and Image Processing, Automatica, Intl. Jl. of Computer Vision, Signal Processing, Image and Vision Computing, SIAM Journal of Imaging Science

Reviewing Activities for Agencies and Foundations

Reviewer

For research proposals submitted to: *AFOSR, ARO, NSF and NASA*

Reviewing Activities for Conferences

1. *IEEE Intl. Conf. on Acoustics, Speech and Signal Processing, 1987 – 2018*

2. *IEEE Intl. Conf. on Image Processing, CIP, 1994-2017.*

3. *IEEE Computer Society Workshop on Visual Motion, 1989, 1991, 2002.*

4. *IEEE* Computer *Society Conference on Computer Vision and Pattern Recognition, 1989, 1991, 1992, 1997, 1999, 2000, 2002-2018.*

5. International *Conf. on Computer Vision, 2001 – 2017*

6. *European Conf. on Computer Vision, 2006, 2008, 2010, 2012, 2014, 2016.*

7. International Conference on Pattern Recognition, 1990, 1994-2016.

8. IEEE ASSP Society Conference on Multidimensional Signal Processing, 1989, 1993, 1998.

9. IEEE Signal Processing Society Workshop on Signal Processing and Neural Networks, Sept., 1991, 1993.

10. IEEE International Joint Conference on Neural Networks, 1990, 1991, 1992.

11. World Congress on Neural Networks, 1993.

12. Program Committee Member, AAAI-97, IJCA1-97, AAAI-2015

13. Program Committee Member, Indian Conf. on Graphics, Vision and Image Processing, 1998 – 2012.

14. Area Chair, CVPR 2008, CVPR 2009, ICCV 2007, ICCV 2011, ICCV 2015.

15. Member, DARPA ISAT Study Group 11/2009 – 11/2012

Campus Service – Department

Graduate Service and Research Committee
Faculty Search Committee
Steering Committee, Salary Committee - UMIACS

Campus Service – College

Appointment Promotion Committee

Campus Service – University

Appointment Promotion Committee

Leadership Roles in Meetings and Conferences

1. **General Chairman**, IEEE Computer Society Conference on Computer Vision and Pattern Recognition, San Diego, CA, June 1989.

2. **General Chairman**, IEEE Computer Society Workshop on Artificial Intelligence for Computer Vision, San Diego, CA, June 1989.

3. **Technical Program Co-Chairman**, NSF Workshop on Markov Random Fields for Image Processing, Analysis and Computer Vision, San Diego, CA, June 9, 1989.

4. **Technical Program Chairman**, IEEE Workshop on Neural Networks for Signal Processing, Baltimore MD, 1993.

5. **Technical Program Chairman**, Second International Conference on Image Processing Crystal City, 1995.

6. **Co-Technical Chair,** Fifth Conf. On Automatic Face and Gesture Washington D.C. 2002.

7. **General Chair**, Intl. Conf. On Multimedia and Expo, Baltimore, 2003.

8. **Co-Technical Chair**, IEEE Computer Society Conf. On Computer Vision and Pattern Recognition, Washington, D.C. 2004

9. **Co-General Chair,** IEEE International Conference on Image Processing, Oct. 2008.

10. **Co-General Chair,** IEEE Computer Society Conf. on Computer Vision and Pattern Recognition, Newport Beach, RI, June 2012.

11. **Co-General Chair,** IEEE Computer Society Conf. on Face and Gestures, Shanghai, April 2013.

12. **Co-General Chair**, First Intl. Conf. on Identity, Security and Behavioral Analysis, Hong Kong, March 2015.

13. **Co-General Chair**, second Intl. Conf. on Identity, Security and Behavioral Analysis, Feb. 2016, Sendai, Japan.

14. **Co-General Chair**, Third Intl. Conf. on Identity, Security and Behavioral Analysis, New Delhi, India, Feb., 2017.

15. **Co-General Chair**, 12th Intl. Conf. on Automatic Face and Gesture Recognition, Washington D.C. June 2017.

16. **Co-General Chair**, IEEE Computer Society Conf. on Computer Vision and Patt. Recn., Honolulu, Hawaii, July 2017.

17. **Served on numerous technical committees for workshops held in conjunction with CVPR, ECCV and ICCV.**

Other Non-University Committees, Memberships, Panels, etc.

1. *Member*, Technical Committee on Multidimensional Signal Processing, IEEE Acoust., Speech, Signal Processing, 1985 - 1997.
2. *Member*, Technical Committee on Pattern Analysis and Machine Intelligence, IEEE Computer Society, 1984-present

3. *Member*, Technical Committee on Neural Networks and Signal Processing, 1991-1997

4. *Member*, Technical Committee on Multimedia Signal Processing 1996-1999.

5. *NSF Panels* to select research initiation *a*wards, carrier awards, regular awards, state, industry, university centers, SBIR awards and ITR awards.

6. *DARPA Panel on MSTAR Architecture, 1994, NSF/DARPA WTEC/JTEC Panel on Digital Libraries, 1997, DARPA ISAT Panel on Dynamic Databases, 1997, DARPA/ISO Panel on Continuous Tracking, 1998 and DARPA / IXO Panel, 2002, DARPA ISAT, member 2009 -2012.*

7. **Member, Board of Governors,** IEEE Signal Processing Society, 1996-1999, Multimedia Steering Committee, IEEE Signal Processing Society, 1999.

8. **Vice-President**, Awards, IEEE Signal Processing Society 2002-2004

9. **President,** IEEE Biometrics Council, 2008-2010

10. **Nominations Committee Chair**, IEEE Bioemtrics Council, 2011-2012.

Entrepreneurial Activities

President and CEO, ImageCorp, Inc (1997-2004). Sold to SET Corporation in Dec. 2004. Was sold to SAIC in 2010.

Consultancies

Consultant, SAIC, Leidos (2010 -2015)
Consultant, NIST, (1993-1996)
Consultant, LNK (1995)

Media Contributions

Popular Science (Discovery Channel), Fox News T.V., BBC, Baltimore Sun, AP

National Geographic, Nov. 2003.