Curriculum Vitae

Amit K. Roy-Chowdhury
Assistant Professor, Dept. of Electrical Engineering
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Work Experience

University of California, Riverside, 2003-present: Assistant Professor, Dept. of Electrical Engineering.
Affiliations: Cooperating Faculty, Dept. of Computer Science and Engineering; Center for Research in Intelligent Systems; Center for Plant Cell Biology.

Center for Automation Research, University of Maryland, College Park, Maryland, 2002-2003: Research Associate.
- Lead Scientist of DARPA funded Human Identification (HID) and Human Activity Inference (HAI) projects.

Center for Automation Research, University of Maryland, College Park, Maryland, 1998-2002: Research Assistant.

HRL Laboratories, 2000: Summer Research Internship.

NEC Research Institute, 1999: Summer Research Internship.

Motorola India Electronics Ltd., 1997-1998 Software Development Engineer.

Education

Doctor of Philosophy, 2002 , Dept. of Electrical and Computer Engineering, University of Maryland, College Park.
Thesis Title: Statistical Analysis of 3D Modeling from Monocular Video Streams.

Master of Engineering, 1997 Systems Science and Automation, Dept. of Electrical Engineering, Indian Institute of Science, Bangalore, India.

Bachelor of Engineering, 1995 , Jadavpur University, Calcutta, India.

Research Interests and Present Work

My long term research interests are in computer vision, image processing, machine learning and statistical signal processing. Some of the projects I am currently involved in are described below briefly.

Image Appearance Models - Integrating Physics-based and Statistical Approaches Our goal in this project is to understand the role of different physical characteristics like object shape, motion, surface reflectance properties, lighting conditions and camera parameters in generating the image of an object. We have obtained theoretical results to describe the image appearance space in terms of these various parameters. We propose to use a combination of geometrical physics-based models and statistical learning to derive a description of the image appearance space. Applications in pose and illumination invariant tracking and **face recognition** using video sequences have been demonstrated.

Robust Tracking and Recognition of Faces in Video Robustness to pose and illumination variations is a challenge in many computer vision tasks, including face recognition. Our work has leveraged the above mentioned theoretical results to develop methods for tracking faces robustly in video and integrating tracking and recognition algorithms to efficiently exploit the total information available in a video sequence.

Scene Analysis in Camera Networks The proliferation of networks of video cameras, possibly mobile and connected over wireless channels, introduce novel challenges in scene analysis by integrating information over the network. We are presently developing algorithms for tracking in a video network, distributed control of the camera network, modeling long-term activity patterns using a combination of mathematical models and machine learning tools, and understanding the interplay of scene analysis and networking requirements. We are also studying the use of a combination of imaging and non-imaging sensors to analyze events.

Biological Image Processing We are investigating the use of image processing and video analysis tools for understanding the dynamics of biological processes like cell growth and divisions. We are specifically concentrating on plant cells with the goals of 3D cell volume estimation, extraction of cell lineages, and learning the spatio-temporal variations in the dynamic patterns of growth.

Human Activity Analysis and Recognition Our work in this very challenging problem has focused on issues related to developing models of human activities using a combination of shape theory and dynamical models, distance metrics for comparing activities, and rate-invariant recognition algorithms.

Distributed Video Compression We are developing methods for compressing multiple video channels in a distributed manner where the encoders operate independently, while the decoders operate jointly. We have developed specific algorithms that succeed in distributed video compression in the context of DCT-based MPEG-2 codecs, as well as model-based coding.

Extramural Funding

As PI

- "Wide-Area Cooperative Biometric/Tagging, Tracking and Locating in a Multimodal Sensor Network", Office of Naval Research, Information Systems Research Thrust Area, 2008-2011, $3,000,000 including sub-contract to West Virginia High Technology Consortium Foundation (recommended for funding).

- "Integrating Illumination, Motion and Shape Models for Video Analysis", National Science Foundation, Information and Intelligent Systems, 2007-2010, $396,932.
- "Scene Activity Analysis in a Large Video Network", Army Research Office, Computer and Information Sciences, 2007-2010, $240,000.
- "A Testbed for Robust Multimodal Sensor Networks", Office of Naval Research, Defense University Research Instrumentation Program, 2007-2009, $274,127
- "An Intelligent Network of Wireless Videos for Dynamic Scene Analysis", National Science Foundation, Power, Controls and Adaptive Networks, 2006-2009, $381,000.
- "Advanced Data Analysis in Video Networks", CISCO and UC Micro, PI, 2007-2009, $90,000.
- "Non-rigid Object Registration", Euclid Discoveries, 2006-2008, $85,348

As Co-PI/Senior Personnel

- "Video and Image Retrieval and Analysis Tool", DARPA, 2008-2010, $200,000 for Phase I (in contract negotiations with DARPA; PI at UCR).
- "III-CXT-Large: Collaborative Research: Interactive and intelligent searching of biological images by query and network navigation with learning capabilities", National Science Foundation, 2008-2011, $100,000.
- "Outdoor Video Sensor Network Laboratory", National Science Foundation, Computational Research Infrastructure, 2006-2009, $250,016.
- "Imaging and Non-Imaging Sensor Network for Urban Disaster Management", National Science Foundation, Computational Research Infrastructure, 2006-2009, $162,601.
- "Aware Building", Office of Naval Research, Senior Personnel.

Professional Service

- Associate Editor, Machine Vision and Applications (a leading journal of the International Association for Pattern Recognition and published by Springer).
- Guest Editor, Special Issue on Video-Based Modeling and Recognition of Human Motion, EURASIP Journal on Image and Video Processing.
- Demos Chair for IEEE Conf. on Computer Vision and Pattern Recognition, 2008.
- Panels Chair for IEEE Conf. on Computer Vision and Pattern Recognition, 2008.
- Organizer of ICIP Special Session on Landmark Shape Sequence Analysis, 2008.
- Registrations Chair for IEEE Intl. Conf. on Image Processing, 2008.
- Proposal review panels at NSF, ARO and Texas Higher Education Coordinating Board (Advanced Research and Technology Program) .

- Reviewer for IEEE Trans. on Pattern Analysis and Machine Intelligence; IEEE Trans. on Image Processing; Computer Vision and Image Understanding; Proc. of the IEEE; IEEE Trans. on Signal Processing; IEEE Trans. on Multimedia; IEEE Trans. on Systems, Man and Cybernetics, Part B; Intl. Journal of Robotics and Automation; Pattern Recognition; Pattern Recognition Letters.
- Technical Program Committee Member of a number of conferences in computer vision: IEEE Conf. on Computer Vision and Pattern Recognition, 2004-2007, IEEE Intl. Conf. on Computer Vision, 2007; Asian Conf. on Computer Vision; Biometrics Workshop in CVPR 2006-8; Indian Conf. on Computer Vision, Graphics and Image Processing, 2006.
- Member of Image and Multi-dimensional Signal Processing (IMDSP) Technical Committee; Technical Program Committee Member of ICASSP and ICIP.

University Service

- Chair of Dept. Assessment and Accreditation Committee (includes coordination and oversight of ABET activities).
- Member, Undergraduate Committee, EE Dept., University of California, Riverside
- Faculty mentor for students majoring in Signal Processing and Communications, and Intelligent Systems.

Teaching

- Probability, Random Variables and Processes in Electrical Engineering (undergraduate required course).
- Computer Visualization (undergraduate technical elective for EE and CS majors).
- Advanced Digital Image Processing (graduate course).
- Current Topics in Computer Vision and Pattern Recognition (advanced graduate course)
- Senior Design Project
- Freshman Discovery Seminar.

Awards

- The paper titled " Towards A Multi-Terminal Video Compression Algorithm Using Epipolar Geometry" co-authored with my graduate student, Bi Song, received a Best Student Paper award at ICASSP 2006, the premier international conference in signal processing.
- University of California Regents' Faculty Fellowship Award, 2004-2005.
- Electrical and Computer Engineering Graduate Student Award, University of Maryland, College Park, 2002.
- Ranked 9th in All-India Graduate Admission Test in Engineering, 1995; Govt. of India Fellowship for graduate studies.

- National Talent Scholarship, Government of India, 1991-95.
- Award by West Bengal State Electrical Engineers' Association (for best undergraduate electrical engineering student in state), India, 1995.

Students

- Yilei Xu, PhD, expected graduation Summer 2008.
- Bi Song, PhD, expected graduation Winter 2009.
- Luis Gonzales-Argueta, MS, expected graduation Fall 2008.
- Antony Lam (co-advisor), PhD candidate
- Cristian Soto, PhD student
- Min Liu, PhD student

Publications

Books

- "Recognition of Humans and Their Activities From Video" R. Chellappa, A. Roy-Chowdhury, S. Zhou, Research Monograph in series on Image, Video and Multimedia Processing, (Ed. Al Bovik). Morgan and Claypool Publishers, 2005.

Journal Articles

1. "Robust Tracking in A Camera Network: A Multi-Objective Optimization Framework", B. Song and A. Roy-Chowdhury, *IEEE Journal on Selected Topics in Signal Processing: Special Issue on Distributed Processing in Vision Networks*, August 2008.
2. "Inverse Compositional Estimation of 3D Pose And Lighting in Dynamic Scenes", Y. Xu and A. Roy-Chowdhury, *IEEE Trans. on Pattern Analysis and Machine Intelligence*, July 2008.
3. "Integrating Illumination, Motion and Shape Models for Robust Face Recognition In Video", Y.Xu, A. Roy-Chowdhury and K. Patel, *EURASIP Journal on Advances in Signal Processing: Special Issue on Advanced Signal Processing and Pattern Recognition Methods for Biometrics*, 2008.
4. "Activity Representation Using 3D Shape Models", M. Abdelkader, A. Roy-Chowdhury, R. Chellappa and U. Akdemir, *EURASIP Journal on Image and Video Processing: Special Issue on Anthropocentric Video Analysis: Tools and Applications*, 2008.
5. "Towards A Measure of Deformability of Shape Sequences", A. Roy-Chowdhury, *Pattern Recognition Letters*, Vol. 28, 2007.
6. "Integrating Motion, Illumination and Structure in Video Sequences, With Applications in Illumination-Invariant Tracking", Y. Xu and A. Roy-Chowdhury, *IEEE Trans. on Pattern Analysis and Machine Intelligence*, May 2007.

7. " Towards A Multi-Terminal Video Compression Algorithm By Integrating Distributed Source Coding With Geometrical Constraints", B. Song, E. Tuncel, A. Roy-Chowdhury, Journal of Multimedia, 2007. *(Invited Paper)*

8. "Matching Shape Sequences in Video with Applications in Human Motion Analysis", A. Veeraraghavan, A. Roy-Chowdhury, R. Chellappa. *IEEE Trans. on Pattern Analysis and Machine Intelligence*, pp. 1896-1909, December, 2005.

9. "Shape Activities: Dynamic Stochastic Models for Moving/Deforming Shapes with Application to Abnormal Activity Detection", N. Vaswani, A. Roy-Chowdhury, R.Chellappa. *IEEE Trans. on Image Processing*, pp. 1603-1616, October, 2005.

10. "Statistical Bias in 3D Reconstruction from Monocular Video", Amit K. Roy-Chowdhury, R. Chellappa. *IEEE Trans. on Image Processing*, pp. 1057-1062, August 2005.

11. "Identification of Humans Using Gait", A. Kale, A.N.Rajagopalan, A.Sunderesan, N.Cuntoor, A. Roy-Chowdhury, V. Krueger, R. Chellappa. *IEEE Trans. on Image Processing*, pp. 1163-1173, Sept. 2004.

12. "An Information Theoretic Criterion for Evaluating the Quality of 3D Reconstructions", Amit K. Roy-Chowdhury, R. Chellappa. *IEEE Transactions on Image Processing,* pp. 960-973, July 2004.

13. "Wide Baseline Image Registration With Application to 3D Face Modeling", Amit K. Roy-Chowdhury, R. Chellappa, Trish Keaton. *IEEE Transactions on Multimedia*, pp. 423-434, June 2004.

14. "Face Reconstruction From Video Using Uncertainty Analysis and A Generic Model", Amit K. Roy-Chowdhury, R. Chellappa. *Computer Vision and Image Understanding*, 91(1-2), pp. 188-213, July-August 2003.

15. "Stochastic Approximation and Rate Distortion Analysis for Robust Structure and Motion Estimation", Amit K. Roy-Chowdhury, R. Chellappa. *International Journal of Computer Vision*, Volume 55(1), pp. 27-53, October 2003.

16. "Region-of-Interest Reconstruction from Noisy Projections Using Fractal Models and Wiener Filtering", Amit K. Roy-Chowdhury, Kaushik Barman, K.R.Ramakrishnan. *Special Issue on Signal Processing and Communications, Sadhana, Journal of the Indian Academy of Sciences, 1997.*

Highly Selective Conference Papers

(Papers with acceptance rates similar to major journals are highlighted.)

1. "A Theoretical Analysis of Linear and Multi-linear Models of Image Appearance", Y. Xu, A. Roy-Chowdhury, *IEEE Conf. on Computer Vision and Pattern Recognition, 2008* (**Acceptance Rate** $\sim$ **30%**).

2. "Learning A Geometry-Integrated Image Appearance Manifold From A Small Training Set", Y. Xu, A. Roy-Chowdhury, *IEEE Conf. on Computer Vision and Pattern Recognition, 2008* (**Acceptance Rate** $\sim$ **30%**).

3. "Stochastic Adaptive Tracking In A Camera Network", B. Song and A. Roy-Chwodhury, *IEEE Intl. Conf. on Computer Vision, 2007*. (**Acceptance Rate** $\sim$ **23%**)

4. "Closed-Loop Tracking and Change Detection in Multi-Activity Sequences", B. Song, N. Vaswani and A. Roy-Chowdhury, *IEEE Computer Vision and Pattern Recognition, 2007.* (**Acceptance Rate $\sim$ 28%**)

5. "The Function Space of an Activity", A. Veeraraghavan, R. Chellappa, A. Roy-Chowdhury, *IEEE Computer Vision and Pattern Recognition, 2006.* (**Oral Presentation, Acceptance Rate 4.8%**)

6. "Integrating the Effects of Motion, Illumination and Structure in Video Sequences", Y. Xu, A. Roy-Chowdhury, *IEEE Intl. Conf. on Computer Vision, 2005*. (**Acceptance Rate $\sim$ 20%**)

7. "A Measure of Deformability of Shapes, With Applications in Human Motion Analysis", A. Roy-Chowdhury, *IEEE Computer Vision and Pattern Recognition, 2005.* (**Oral Presentation, Acceptance Rate 6.5%**)

8. "Role of Shape and Kinematics in Human Movement Analysis", A. Veeraraghavan, A. Roy-Chowdhury, R. Chellappa, *IEEE Computer Vision and Pattern Recognition, 2004.* (**Acceptance Rate $\sim$ 30%**)

9. "Activity Recognition Using the Dynamics of the Configuration of Interacting Objects", Namrata Vaswani, Amit K. Roy-Chowdhury, R. Chellappa. *IEEE Computer Vision and Pattern Recognition, 2003.* (**Acceptance Rate $\sim$ 23%**)

Book Chapters

1. "Model-based Multi-view Video Compression Using Distributed Source Coding Principles", J. Nayak, B. Song, E. Tuncel, A. Roy-Chowdhury, Distributed Source Coding: Theory, Algorithms and Applications (Eds. P. Luigi and M. Gatspar), Elsevier, In Press.

2. "Face Tracking", Encyclopedia of Biometrics, Springer, In Press.

3. "Combining Geometrical and Statistical Models for Video-based Face Recognition", A. Roy-Chowdhury and Y. Xu, Biometrics: Theory, Methods and Applications (Eds. N.V. Boulgouris, K.N. Plataniotis, and E. Micheli-Tzanakou), IEEE Press, 2008.

4. "Pose and Illumination Invariant Face Recognition Using Video Sequences", A. Roy-Chowdhury, Y. Xu, Multi-Biometric Systems for Identity Recognition: Theory and Experiments, (Eds. R. Hammoud, M. Abidi and B. Abidi), Springer-Verlag, 2007.

5. "Human Identification Using Face and Gait", R. Chellappa, A. Roy-Chowdhury, A. Kale, Multimodal Surveillance: Sensors, Algorithms and Systems, (Eds. Zhigang Zhu, Tom Huang), Artech House, 2007.

6. "3D Face Modeling From Monocular Video Sequences", A. Roy-Chowdhury, R. Chellappa, H. Gupta, Face Processing: Advanced Modeling and Methods (Eds. R.Chellappa and W.Zhao), Academic Press, 2006.

7. "Integrating Motion and Illumination Models for 3D Tracking", A. Roy-Chowdhury, Y. Xu, Computer Vision for Interactive and Intelligent Environments, (Eds. C. Jaynes and R. Collins), IEEE Press, 2006.

8. "Statistics in Computer Vision and Image Processing", Rama Chellappa, Amit K. Roy-Chowdhury. Encyclopedia of Statistical Sciences, 2nd Edition, Vol. 2, (Eds. S. Kotz et al), 2005.

9. ”Human Identification Using Gait and Face”, R. Chellappa, A. Roy-Chowdhury, S. Zhou, The Electrical Engineering Handbook, 3rd Ed., (Ed. D. Etter), CRC Press, 2004.

10. ”Gait-Based Human Identification From A Monocular Video Sequence”, A. Kale, A. Roy-Chowdhury, R. Chellappa, Handbook on Pattern Recognition and Computer Vision, 3rd Ed., (Eds. C.H.Cheng and P.S.P.Wang), World Scientific Publishing Company Pvt. Ltd.

Other Refereed Conference Publications

1. “Efficient Motion Estimation Under Varying Illumination”, Y. Xu, A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2008*.

2. ”Multi-Target Tracking Through Opportunistic Camera Control In A Resource Constrained Multimodal Sensor Network”, J. Nayak, L. Gonzalez-Argueta, B. Song, A. Roy-Chowdhury and E. Tuncel, *IEEE/ACM Intl. Conf. on Distributed Smart Cameras, 2008.*

3. ”Decentralized Camera Network Control Using Game Theory”, B. Song, C. Soto, A. Roy-Chowdhury and J. Farrell, *Workshop on Smart Camera and Visual Sensor Networks at IEEE/ACM Intl. Conf. on Distributed Smart Cameras, 2008.*

4. “Pose and Illumination Invariant Face Recognition in Video”, Y. Xu, A. Roy-Chowdhury, K. Patel, *IEEE Computer Society Workshop on Biometrics (in conjunction with CVPR), 2007*.

5. “Determining Topology In A Distributed Camera Network”, X. Zou, B. Bhanu, B. Song, A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2007*.

6. “Modeling Time-Varying Illumination Patterns in Video”, Y. Xu, A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2007*.

7. “Super-resolved Facial Texture Under Changing Pose and Illumination”, J. Yu, B. Bhanu, Y. Xu, A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2007*.

8. “Integrated Tracking and Recognition of Human Activities in Shape Space”, B. Song, A. Roy-Chowdhury and N. Vaswani, *Indian Conf. on Computer Vision, Graphics and Image Processing, 2006.*

9. “Pose and Illumination Invariant Registration and Tracking for Video-based Face Recognition”, Y. Xu and A. Roy-Chowdhury, *IEEE Computer Society Workshop on Biometrics (in association with CVPR), 2006*.

10. “Learning Illumination Models While Tracking”, Y. Xu and A. Roy-Chowdhury, *Intl. Synposium on 3D Data Processing, Visualization and Transmission, 2006.*

11. “An Illumination Invariant 3D Model-based Tracking Algorithm, With Application in Video Compression”, L. Nyugen, Y. Xu and A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2006.*

12. “A Multi-Terminal Model-Based Video Compression Algorithm”, B. Song, A. Roy-Chowdhury, E. Tuncel, *IEEE Intl. Conf. on Image Processing, 2006.*

13. “Summarization and Indexing of Human Activity Sequences”, B. Song, N. Vaswani, A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2006.*

14. "Towards A Multi-Terminal Video Compression Algorithm Using Epipolar Geometry", B. Song, O. Bursalioglu, E. Tuncel, A. Roy-Chowdhury, *Intl. Conf. on Acoustics, Speech and Signal Processing, 2006.* (**Best Student Paper Award**)

15. "The Joint Motion and Illumination Space of Video Sequences", Y. Xu and A. Roy-Chowdhury, *IEEE Intl. Conf. on Image Processing, 2005*.

16. "An Algorithm for 3D Reconstruction of Deformable Shape Sequences", A. Roy-Chowdhury, *Intl. Conf. on Acoustics, Speech and Signal Processing, 2005.*

17. "Activity Representation Using 3D Shape Models", A. Roy-Chowdhury, R. Chellappa, U. Akdemir, *Indian Conf. on Computer Vision, Graphics and Image Processing, 2004.*

18. "Contour Based 3D Face Modeling From A Monocular Video", H. Gupta, A. Roy-Chowdhury, R. Chellappa, *British Machine Vision Conference*, 2004.

19. "A System Identification Approach for Video-Based Face Recognition", G. Aggarwal, Amit K. Roy-Chowdhury, R. Chellappa. *International Conference on Pattern Recognition, 2004.*

20. "Facial Similarity Across Age, Disguise, Illumination and Pose", N. Ramanathan, A. Roy-Chowdhury, R. Chellappa, *International Conference on Image Processing, 2004.*

21. "Multiple View Tracking of Human Motion Modeled by Kinematic Chains", A. Sundaresan, A. Roy-Chowdhury, R. Chellappa, *International Conference on Image Processing, 2004.*

22. "Fusion of Face and Gait for Human Identification", A. Kale, A. Roy-Chowdhury, R. Chellappa, *Intl. Conf. on Acoustics, Speech and Signal Processing, 2004.*

23. "3D Analysis of Human Motion Using Kinematic Chains and Multiple Cameras for Tracking", A. Sundaresan, A. Roy-Chowdhury, R. Chellappa, *Eighth Intl. Symp. on 3-D Analysis of Human Motion, Tampa, Florida*, 2004.

24. "Deterministic and Statistical Properties of Multi-resolution 3D Modeling", A. Roy-Chowdhury, H. Liu, R. Chellappa. *ICCV Workshop on Statistical and Computational Theories in Vision, 2003.*

25. "A Factorization Approach for Activity Recognition", Amit K. Roy Chowhdury, R. Chellappa. *CVPR Workshop on Event Mining, 2003.*

26. "Statistical Error Propagation in 3D Modeling From Monocular Video", Amit K. Roy Chowdhury, R. Chellappa. *CVPR Workshop on Statistical Analysis in Computer Vision, 2003.*

27. "A Hidden Markov Model Based Framework for Recognition of Humans from Gait Sequences", Aravind Sunderesan, Amit K. Roy Chowdhury, R. Chellappa. *Accepted to Intl. Conf. on Image Processing, 2003.*

28. "Video Based Rendering of Planar Dynamic Scenes", Amit Kale, Amit K. Roy-Chowdhury, R. Chellappa. *Intl. Conf. on Multimedia and Expo, 2003.*

29. "Video Synthesis of Arbitrary Views for Approximately Planar Scenes", Amit K. Roy-Chowdhury, A. Kale, R. Chellappa. *International Conference on Acoustics, Speech and Signal Processing, 2003.*

30. "Towards A View Invariant Gait Recognition Algorithm", Amit K. Roy-Chowdhury, A. Kale, R. Chellappa. *IEEE Intl. Conf. on Advanced Video and Signal Based Surveillance, 2003.*

31. "Statistical Shape Theory for Activity Modeling", Namrata Vaswani, Amit K. Roy-Chowdhury, R. Chellappa. *International Conference on Acoustics, Speech and Signal Processing, 2003.*

32. "Activity Modeling and Recognition Using Shape Theory", R. Chellappa, N.Vaswani, Amit K. Roy-Chowdhury. *Behavior Representation in Modeling and Simulation, 2003.*

33. "3D Face Reconstruction From Video Using a Generic Model", Amit K. Roy-Chowdhury, S. Krishnamurthy, T. Vo, R. Chellappa. *Proceedings of the International Conference on Multimedia and Expo, 2002*.

34. "Towards A Criterion For Evaluating the Quality of 3D Reconstructions", Amit K. Roy-Chowdhury, R. Chellappa. *Proceedings of the International Conference on Acoustics, Speech and Signal Processing, 2002.*

35. "Wide Baseline Image Registration Using Prior Information", Amit K. Roy-Chowdhury, R. Chellappa, Trish Keaton. *Proceedings of IEEE International Workshop on Multimedia Signal Processing, 2002.*

36. "Robust Estimation of Depth and Motion Using Stochastic Approximation", Amit K. Roy-Chowdhury, R. Chellappa. *Proceedings of the International Conference on Image Processing, Greece, 2001.*

37. "A Robust Algorithm for Fusing Noisy Depth Estimates Using Stochastic Approximation", Amit K. Roy-Chowdhury, R. Chellappa. *Proceedings of the International Conference on Acoustics, Speech and Signal Processing, Utah, 2001.*

38. "Fusing Multiple Two Frame Depth Estimates for 3D Reconstruction With Unknown Noise Distribution", Amit K. Roy-Chowdhury, R. Chellappa. *Proceedings of the Indian Conference on Computer Vision, Graphics and Image Processing, Bangalore, India, 2000.*

39. "A Real-time LD-CELP Codec on Pentium", Amit K. Roy-Chowdhury, M.Singhal. *International Conference on Signal Processing Applications & Technology, 1998, Toronto , Canada.*

40. "An Efficient Implementation of H.221 Protocol on DSP563xx Processor", A.Sridhar, Amit K. Roy-Chowdhury. *International Conference on Signal Processing Applications & Technology, 1998, Toronto , Canada.*

41. "Region-of-Interest Reconstruction from Noisy Projections Using Fractal Models and Wiener Filtering" Amit K. Roy-Chowdhury, Kaushik Barman, K.R.Ramakrishnan. *Conference on Signal Processing, Communications and Networking, Bangalore, India, 1997.*

Magazine Articles

- "About Face" - National Geographic, November 2003, pp 18-19. (Featured our work on face recognition under variations of pose, illumination and disguise.)

Patents

- "Method of three-dimensional object reconstruction from a video sequence using a generic model", United States Patent Number 7,184,071, Issued Feb. 27, 2007. (Inventors: R. Chellappa, A. Roy-Chowdhury, S. Srinivasan)

- "A Method and Apparatus for Generating 3D Models from Uncalibrated Views", US Patent 7289662, Issued Oct. 30, 2007 (Inventors: P. Keaton, A. Roy-Chowdhury).

Seminars

- "From Images to Camera Networks: Modeling, Inference and Control", University of California, Los Angeles, May 2008.
- "From Images to Camera Networks: Modeling, Inference and Control", University of Southern California, April 2008.
- "Dynamic Scene Analysis in a Camera Network", Indian Institute of Science, Bangalore, India, December 2007.
- "Dynamic Scene Analysis in A Camera Network", California Institute of Technology, April 2007.
- "Modeling and Recognition of Dynamic Events in A Camera Network", University of California, Santa Barbara, November 2006.
- "Integrating Motion and Illumination Models for Video Analysis", University of California, Irvine, March 2006.
- "Effect of Motion and Illumination Changes in 3D Modeling and Object Recognition", University of Maryland, College Park, March 2005.
- "Computational Models for Video Understanding", University of Southern California. Oct 2004.
- "Dynamic Scene Analysis and Inference", Dept. of Computer Science, University of Kentucky, Lexington. May 2003.
- "Video Based Analysis of Human Motion and Activity", Arizona State University. May 2003.
- "Video Based Analysis of Human Motion and Activity", Center for Imaging Sciences, Johns Hopkins University. April 2003.
- "Statistical Inference for Dynamic Scene Analysis", Dept. of Statistics, Florida State University, April 2003.
- "Dynamic Scene Analysis and Inference", Dept. of Computer Science, Univ. of Massachusetts, Amherst. April 2003.
- "Video-Based Dynamic Scene Interpretation and Activity Inference", Dept. of Electrical and Computer Engineering, Stanford University. March 2003.
- "Video-Based Dynamic Scene Interpretation and Activity Inference", Dept. of Electrical Engineering, University of California, Riverside. March 2003.
- "Recognition Algorithms From Monocular Video Using Motion Analysis", Dept. of Computer Science, University at Buffalo. February 2002.
- "Statistical Video Processing In 3D Modeling and Recognition", GRASP Lab, University of Pennsylvania. January, 2003.

- “Estimating 3D Structure from Monocular Video, With An Application To Face Modeling”, Robotics Institute, Carnegie-Mellon University. May 2002.
- “Estimating the 3D World from Video - An Interplay of Statistics and Geometry”, Dept. of Electrical and Computer Engineering, University of California, San Diego. March, 2002.