

Xu Chen

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EDUCATION **Ph.D University of Illinois** 08/2006 – 05/2010 Department of
Electrical and Computer Engineering (ECE)
M.S. University of Illinois 09/2006–07/2008 Department of
Electrical and Computer Engineering (ECE)
B.E. Shanghai Jiaotong University (SJTU), 09/2002 –07/2006
Department of Electrical Engineering (EE), GPA 3.8/4.0, Shanghai, China

CURRENT POSITION - **Postdoctoral Fellow with Professor Alfred Hero** 05/2010-present, **University of Michigan at Ann Arbor**, Department of Electrical Engineering and Computer Science.

RESEARCH INTEREST - Information Indexing and Retrieval, Machine Learning, Image and Video Processing.

PUBLICATIONS **Book Chapters**

- 1 Xiang Ma, **Xu Chen**, Ashfaq Khokhar and Dan Schonfeld, "Motion Content-based Video Retrieval, Classification and Summarization: The State-of-the-Art and the Future", Video Search and Mining, Springer-Verlag, 2010.

Journal Papers

- 1 **Xu Chen**, Alfred Hero and Silvio Savarese, "Multimodality Video Indexing using Directed Information", IEEE Transactions on Multimedia Special Issue on Object and Event Classification in Large-Scale Video Collections (**T-MM**), volume 14, no.1, 2012.
- 2 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Localization and Trajectory Estimation of Mobile Objects Using Minimum Samples", IEEE Transactions on Vehicular Technology (**TVT**), volume 9, issue 58, 2009.
- 3 **Xu Chen**, Madirakshi Das and Alexander Loui, "An Efficient Framework for Location-based Scene Matching in Image Databases", International Journal of Multimedia Information Retrieval (**IJMIR**), accepted, 2012.
- 4 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Null Space Invariants: Part 2: View Invariant Modelling and Representation of Spatial-Temporal Object Trajectories under Non-linear Constraints", IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**), 2010, submitted.
- 5 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Null Space Invariants: Part 1: View Invariant Motion Trajectory Analysis and Image Classification and Retrieval", IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**), 2009, under the 2nd round review.
- 6 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Robust Closed-form Tracking of Moving Targets Using a Single Sensor with Arbitrary Noise Degradation", IEEE Transactions on Vehicular Technology (**TVT**), 2010, submitted.

Conference Papers

- 1 **Xu Chen**, Zeeshan Syed and Alfred Hero, "EEG Spatial Decoding with Shrinkage Optimized Directed Information Assessment", International Conference on Acoustics, Speech, and Signal Processing (ICASSP), accepted, 2012.
- 2 **Xu Chen**, Yilun Chen and Alfred Hero, "Shrinkage Fisher Information Embedding of High Dimensional Feature Distributions", Asilomar Conference on Signals, Systems and Computers, 2011.

- 3 **Xu Chen** and Alfred Hero, "Fisher Information Embedding for Video Indexing and Retrieval", Computational Imaging, SPIE Electronic Imaging Conference, San Jose, 2011 (**Invited Paper**).
- 4 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Bilinear Invariants Representation for Video Classification and Retrieval". IEEE International Conference on Image Processing (**ICIP'10**), Hong Kong 2010.
- 5 **Xu Chen**, Madirakshi Das, and Alexander Loui, "A novel framework for fast scene matching in consumer image collections", IEEE International Conference on Multimedia and Expo (**ICME'2010**), Singapore, 2010.
- 6 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Non-linear Kernel Space Invariant Representation for View-Invariant Motion Trajectory Retrieval and Classification ", International Conference on Acoustics, Speech and Signal Processing (**ICASSP'2010**), Texas, Dallas, 2010.
- 7 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Localized Null-Space Representation For Dynamic Updating and DOWndating In Image and Video Databases", International Conference on Image Processing (**ICIP'2009**), Cairo, Egypt, 2009.
- 8 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "View-Invariant Tensor Null-Space Representation For Multiple Motion Trajectory Retrieval and Classification", International Conference on Acoustics, Speech and Signal Processing (**ICASSP'2009**), Taipei, Taiwan, 2009.
- 9 **Xu Chen** and Pascal Frossard, "Joint Reconstruction of Compressed Multi-view Images", International Conference on Acoustics, Speech and Signal Processing (**ICASSP'2009**), Taipei, Taiwan, 2009.
- 10 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Robust Closed-form Localization of Mobile Targets Using a Single Sensor Based on a Non-linear Measurement Model", 9th IEEE Workshop on Signal Processing Advances in Wireless Communications, (**SPAWC'08**), Recife, Brazil, 2008.
- 11 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Robust Multi-dimensional Null Space Representation for Image Retrieval and Classification", 2008 IEEE International Conference on Image Processing (**ICIP'2008**), San Diego, California, 2008.
- 12 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Robust Null Space Representation and Sampling for View-Invariant Motion Trajectory Analysis", IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'2008**), Anchorage, Alaska, 2008.
- 13 Eser Ustunel, **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Null-Space Representation For View-Invariant Motion Trajectory Classification-Recognition and Indexing-Retrieval", International Conference on Acoustics, Speech and Signal Processing (**ICASSP'2008**), Las Vegas, Nevada, 2008, Page(s): 809 - 812.
- 14 **Xu Chen**, Dan Schonfeld, and Ashfaq Khokhar, "Localization and trajectory estimation of mobile objects with a single sensor", IEEE Statistical Signal Processing Workshop (**SSP'2007**), Page(s):363 -367, Madison, Wisconsin, August, 2007.

RESEARCH
EXPERIENCES

- 1 **Postdoctoral Fellow with Professor Alfred Hero** 05/2010-present, **University of Michigan at Ann Arbor**, Department of Electrical Engineering and Computer Science.
- 2 **Research Assistant** 08/2006 – 05/2010 Department of Electrical and Computer Engineering, University of Illinois.
- 3 **Research Intern at Kodak Research Lab, Eastman Kodak Company, Rochester, NY, USA** 05/2009 – 08/2009
- 4 **Research Intern at Signal Processing Laboratory (LTS4), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland** 05/2008 – 08/2008

PROJECT
EXPERIENCES

- 1 **Fisher Information Non-parametric Embedding for Video Indexing and Clustering** (May 2010 - Present, Umich)
- 2 **Multimodality video indexing and retrieval with shrinkage optimized directed information assessment (SODA)**(May 2010 - Present, Umich)
- 3 **Social Network Behavior Analysis through Spammer Data Clustering** (May 2010 - Present, Umich)
- 4 **View Invariant Representation for Image and Motion-based Video Indexing, Classification and Retrieval** (May 2007 - May 2010, University of Illinois)

- 5 **Tracking Multiple Mobile Targets with a Single Sensor**(Sep 2006 - May 2007, University of Illinois)
- 6 **Joint Reconstruction of Compressed Multi-view Images** (May 2008 - August 2008, EPFL)
- 7 **Semantic Content Recognition and Scene Learning** (May 2009 - August 2009, Kodak Research Lab)

REVIEWING
ACTIVITIES

- 1 Regular Reviewer for IEEE Transactions on Image Processing (TIP), IEEE Transactions on Signal Processing (T-SP), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), IEEE Signal Processing Letters, IEEE Communication Letters, ICIP, ICME, ICC and GLOBECOM.

REFERENCE

- 1 Professor **Alfred Hero**, University of Michigan at Ann Arbor, Department of Electrical Engineering and Computer Science, hero@umich.edu, 734-763-0564.
- 2 Professor **Silvio Savarese**, University of Michigan at Ann Arbor, Department of Electrical Engineering and Computer Science, silvio@eecs.umich.edu, 734-647-8136.
- 3 Professor **Zeeshan Syed**, University of Michigan at Ann Arbor, Department of Electrical Engineering and Computer Science, zhs@umich.edu.
- 4 Dr **Alexander C.Loui**, Project Leader, Kodak Research Labs, Eastman Kodak Company, alexander.loui@kodak.com, (585)-588-0327.
- 5 Dr **Majid Rabbani**, Department Head, Intelligent Systems Research, Kodak Research Labs, Eastman Kodak Company, majid.rabbani@kodak.com, (585)-477-3722.
- 6 Professor **Dan Schonfeld**, Professor, University of Illinois at Chicago, dans@uic.edu