

# John Wright

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## EDUCATION

Ph.D. in Electrical Engineering Expected Spring 2009  
University of Illinois at Urbana-Champaign  
Thesis title: *Error Correction for High-Dimensional Data via Convex Optimization*  
Thesis advisor: Prof. Yi Ma

M.S. in Electrical Engineering 2007  
University of Illinois at Urbana-Champaign  
Thesis title: *Segmentation of Multivariate Mixed Data via Lossy Coding and Compression*  
Thesis advisor: Prof. Yi Ma

B.S. in Computer Engineering 2004  
University of Illinois at Urbana-Champaign

## RESEARCH EXPERIENCE

Researcher May 2009-present  
Visual Computing Group Microsoft Research Asia, Beijing, China

Graduate Research Assistant 2005-2009  
Perception and Decision Laboratory University of Illinois at Urbana Champaign

Research Intern Summer 2008  
Microsoft Live Labs Microsoft Corporation, Redmond, WA.

Research Intern Fall 2006  
Visual Computing Group Microsoft Research Asia, Beijing, China

Undergraduate Research Assistant Summer 2003, 2004  
Media and Machines Laboratory Washington University in St. Louis

## AWARDS AND HONORS

Martin Award for Outstanding Graduate Research, University of Illinois at Urbana-Champaign, 2009.

Lemelson-Illinois Student Prize, University of Illinois at Urbana-Champaign, 2009.

Microsoft Research Fellowship, 2008-2010.

ECE Distinguished Fellowship, University of Illinois at Urbana-Champaign, 2005-2006.

Carver Fellowship, 2005.

Bronze Tablet Award, University of Illinois at Urbana-Champaign, 2004.

## PUBLICATIONS

### JOURNAL

**John Wright**, Arvind Ganesh, Shankar Rao and Yi Ma. “Robust Principal Component Analysis: Exact Recovery of Corrupted Low-rank Matrices by Convex Optimization.” submitted to *Journal of the ACM*, May 2009.

**John Wright**, Yi Ma, Julien Mairal, Guillermo Sapiro, Thomas Huang, Shuicheng Yan. “Sparse Representation for Computer Vision and Pattern Recognition.” submitted to *Proceedings of the IEEE*, March 2009.

**John Wright** and Yi Ma. “Dense Error Correction via  $\ell^1$ -Minimization.” submitted to *IEEE Transactions on Information Theory*, August 2008.

**John Wright**, Yangyu Tao, Zhouchen Lin, Yi Ma and Heung-Yeung Shum. “Classification via Minimum Incremental Coding Length (MICL),” to appear in *SIAM Journal on Imaging Science*, 2009.

**John Wright**, Allen Yang, Arvind Ganesh, Shankar Sastry and Yi Ma. “Robust Face Recognition via Sparse Representation,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, February 2009.

Allen Yang, **John Wright**, Shankar Sastry and Yi Ma. “Unsupervised Segmentation of Natural Images via Lossy Data Compression,” *Computer Vision and Image Understanding*, September 2008.

Yi Ma, Harm Derksen, Wei Hong and **John Wright**. “Segmentation of Multivariate Mixed Data via Lossy Coding and Compression,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, September 2007.

Wei Hong, **John Wright**, Kun Huang and Yi Ma. “A Multi-scale Hybrid Linear Model for Lossy Image Representation,” *IEEE Transactions on Image Processing*, November 2006.

### CONFERENCE

**John Wright** and Gang Hua. “Implicit Elastic Matching with Random Projections for Pose-Variant Face Recognition,” *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2009.

Andrew Wagner, **John Wright**, Arvind Ganesh, Zihan Zhou and Yi Ma. “Toward a Practical Automatic Face Recognition System: Robust Pose and Illumination by Sparse Representation.” *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2009.

Yoav Sharon, **John Wright** and Yi Ma. “Minimum Sum of Distances Estimator: Robustness and Stability,” *American Control Conference (ACC)*, June 2009.

**John Wright** and Yi Ma. “Dense Error Correction via  $\ell^1$ -minimization,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, April 2009.

Zihan Zhou, Arvind Ganesh, **John Wright**, Shen-Fu Tsai, and Yi Ma. “Nearest Subspace Patch Matching for Pose-Variant Face Recognition,” *IEEE Conference on Face and Gesture Recognition (FGR)*, September 2008.

Jianchao Yang, **John Wright**, Thomas Huang and Yi Ma. “Image Super-resolution as Sparse

Representation of Raw Patches.” *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2008.

**John Wright**, Yangyu Tao, Zhouchen Lin, Yi Ma and Heung-Yeung Shum. “Classification via Minimum Incremental Coding Length (MICL),” *Neural Information Processing Systems (NIPS)*, December 2007.

**John Wright**, Wei Hong, Yi Ma, and Harm Derksen. “Segmentation of Multivariate Mixed Data via Lossy Coding and Compression,” In *SPIE conference on Visual Communication and Image Processing (VCIP)*, January 2007.

**John Wright**, Andrew Wagner, Shankar Rao, and Yi Ma. “Homographies and Matching of Ellipses with Applications to Forensic Bloodspatter Reconstruction,” *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2006.

Wei Hong, **John Wright**, Kun Huang, and Yi Ma. “A Multi-scale Hybrid Linear Model for Lossy Image Representation,” *IEEE International Conference on Computer Vision (ICCV)*, October 2005.

**John Wright** and Robert Pless. “Analysis of Persistent Motion using the 3-D Structure Tensor,” *IEEE Workshop on Motion and Video Computing*, January 2005.

Richard Souvenir, **John Wright** and Robert Pless. “Spatiotemporal Detection and Isolation: Results on PETS Datasets,” *IEEE Workshop on Performance Evaluation of Tracking and Surveillance*, January 2005.

## SOFTWARE AND PATENTS

*Implicit Elastic Matching with Random Projections for Pose-Variant Face Recognition*  
U.S. Patent, under review.  
with Gang Hua.

*A Method for Recognizing Partially Occluded Objects.*  
U.S. Provisional Patent.  
U.S. and International Patents to be filed, January 2009.  
with Allen Yang, Arvind Ganesh, Andrew Wagner and Yi Ma

MATLAB Toolbox for Image Segmentation.  
[http://eecs.berkeley.edu/~yang/software/lossy\\_segmentation/](http://eecs.berkeley.edu/~yang/software/lossy_segmentation/)  
with Allen Yang and Yi Ma

MATLAB Toolbox for Classification via Lossy Coding.  
<http://perception.csl.uiuc.edu/~jnwright/coding/>  
with Wei Hong and Yi Ma

MATLAB Toolbox for Segmenting Multivariate Mixed Data.  
<http://perception.csl.uiuc.edu/~jnwright/coding/>  
with Yi Ma

## TEACHING

Teaching assistant, guest lecturer  
*ECE 598: Sparse Representation and High-Dimensional Geometry in Pattern Recognition.*  
Lectured, assisted in design and organization of new special topics course for graduate students.

Organizer, lecturer

CVPR 2009 Short course on *Sparse Representation and Its Applications in High-Dimensional Pattern Recognition*

Designed a new short course introducing topics in sparse representation and compressed sensing to graduate students and researchers in the computer vision community.

## PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE), member.

Association for Computing Machines (ACM), student member.

Society for Industrial and Applied Mathematics (SIAM), student member.

## SERVICE

Reviewer:

*IEEE Transactions on Pattern Analysis and Machine Intelligence*

*IEEE Transactions on Signal Processing*

*IEEE Transactions on Image Processing*

*ACM Siggraph*

*International Conference on Machine Learning (ICML)*

Short courses and tutorials organized:

CVPR 2009 short course: *Sparse Representation and Its Applications in High-Dimensional Pattern Recognition*

## PRESENTATIONS

“*Robust Principal Component Analysis: Exact Recovery of Corrupted Low-Rank Matrices by Convex Optimization.*” Sampling Theory and Applications (SAMPTA). May 2009.

“*Error Correction for High-Dimensional Data via Convex Optimization.*” Final Defense, University of Illinois at Urbana-Champaign. May 2009.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” IEEE International Conference on Acoustics, Audio and Signal Processing (ICASSP). April 2009.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” Information Theory and Applications Graduation day. February 2009.

“*Mixed Data Segmentation via Agglomerative Lossy Compression.*” Institute for Mathematics and Applications (IMA) Workshop on Multi- Manifold Data Analysis, University of Minnesota, October 2008.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” California Institute of Technology. October 2008.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” Mathematical Image Processing Seminar, UCLA. October 2008.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” Computer Vision Seminar, UC Berkeley. September 2008.

“*Dense Error Correction with Applications in Computer Vision.*” Pattern Analysis and Machine Learning Seminar, University of Illinois at Urbana-Champaign. September 2008.

“*Dense Error Correction via  $\ell^1$ -Minimization.*” Digital Signal Processing Seminar, University of Illinois at Urbana-Champaign. September 2008.

*“Robust Face Recognition via Sparse Representation.”* IEEE Conference on Face and Gesture Recognition, September 2008.

*“Image Super-resolution as Sparse Representation of Raw Patches.”* SIAM Conference on Imaging Science. July 2008.

*“Robust Face Recognition via Sparse Representation.”* Pattern Analysis and Machine Learning Seminar, University of Illinois at Urbana-Champaign. September 2007.

*“A Lossy Coding Approach to Clustering and Classification.”* Coordinated Science Laboratory Student Conference, University of Illinois at Urbana-Champaign. January 2007.

*“Analysis of Persistent Motion Using the 3-D Structure Tensor.”* IEEE Workshop on Motion and Video Computing, January 2007.