Meng Yu

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Education	**University of California, Irvine** Ph.D. candidate in Speech Signal Processing	Jun. 2009 - Dec. 2011(expected)
	University of California, Irvine M.S. in Applied and Computational Mathematics	Sep. 2007 - Jun. 2009
	Peking University, Beijing, China B.S. in Informatics and Computational Mathematics *Honored Chun-Tsung Scholar*	Sep. 2003 - Jul. 2007
Awards and Honors	**Annual Von Neumann Award** Excellent graduate student	Jun. 2011
	Microsoft Research Asia Certificate of Excellent Internship	Nov. 2010
	Annual Euler Award Excellent graduate student	Jun. 2009
	Singapore-Beijing Modeling Program Meritorious Winner	Jul. 2006
	China Mathematical Modeling Contest, Beijing Outstanding Winner	Sep. 2005
	China SINOPEC Scholarship	2004 - 2005
	21st College Physics Contest, Beijing 3rd Place Award	Dec. 2004
	China National Scholarship 1st Place Award	2003 - 2004

Experience

Speech Group at Microsoft Research Asia — Internship
Beijing — Jun. - Sep. 2011 (expected)

- Primary project: multiple microphones speech dereverberation;
- Primary project: single microphone speech denoise;
- Primary project: Kinect application of speech processing.

Multimedia Group at Mitsubishi Electric Research Lab — Internship
Cambridge, MA — Jan. - Mar. 2011

- Primary project: robust speech enhancement for automotive applications.
- Primary project: classifier for semantic concept identification.

Speech Group at Microsoft Research Asia — Internship
Beijing — Jun. - Sep. 2010

- Primary project: sparse filter based overlapping speech detection;
- Primary project: sparse filter based single and multi-speaker direction of arrival estimation;
- Collaborative project: a sparse and low-rank approach to efficient face alignment for photo-real talking-head synthesis.

University of California   Research Assistant
Irvine, CA   Mar. 2008 - present

- Single image deblurring based on dictionary learning;
- Entropy based speaker turn detection;
- Sparse representation based exemplar semantics identification and categorization;
- L1 regularized convex optimization based fast speech extraction;
- L1 regularized convex optimization based musical noise reduction;
- A novel algorithm for speech separation with joint estimation of both magnitude and phase;
- Harmonic suppression based blind speech separation and speech quality enhancement;
- Non-uniform filter-bank in blind speech separation;
- Non-locally weighted and soft-constrained blind speech separation;
- Auto-Regressive model based generation of Laplacian distribution solved by moment method;
- Analyzing stochastic phase switch by Dynamic Monte Carlo algorithm.

Junnet Science & Technology Co. Ltd.   Operation and Management Internship
Beijing, China   Jul. - Aug. 2006

- Analyzed company financial information and daily reported.

National University of Singapore   Visiting Student
Singapore   Jun. - Jul. 2006

- Training in mathematical modeling and engineering;
- Team leader of 3 in designing statistical approaches and ranking methods for the weblog.

Peking University   Chun-Tsung Researcher
Beijing, China   Sep. 2005 - Jun. 2007

- Numerical method of Landau-Brazovskii model and application in block copolymers.

Publications

1. **M. Yu**, and J. Hershey, Sparse representation classifier for semantic concept identification with feature denoising by low rank matrix completion, *manuscript in preparation.*

2. **M. Yu**, and J. Hershey, Feature-weighted hierarchical sparse learning for semantic concept identification, *submitted to ECML 2011*

3. **M. Yu**, and J. Hershey, A robust generalized sidelobe canceller for automotive applications, *manuscript in preparation.*

4. **M. Yu**, F. Soong and J. Xin, Sparse filter based overlapping speech detection, *manuscript in preparation.*

5. **M. Yu**, Y. Zhang and F. Soong, Sparse filter based single and multi-speaker direction of arrival estimation, *manuscript in preparation.*

6. S. Zhang, **M. Yu**, M. Lee and J. Xin, Identification of semantic categories: a sparse representation approach, *CogSci 2011*

7. **M. Yu**, and J. Xin, A hybrid nonuniform filter bank with application to blind separation of convolutive mixtures, *Wireless Communications 2011*

8. **M. Yu**, W. Ma, J. Xin and S. Osher, A convex model and l_1 minimization for musical noise reduction in blind source separation, Communications in Mathematical Sciences, to appear

9. **M. Yu**, W. Ma, J. Xin and S. Osher, l_1 regularized convex speech enhancement model and fast computation by the split Bregman method, *IEEE Tran. on Audio, Speech and Language Proc., to appear*

10. **M. Yu** and J. Xin, Stochastic approximation and a nonlocally weighted soft-constrained recursive algorithm for blind separation of reverberant speech mixtures, *vo. 28, no. 4, Discrete and Continuous Dynamical Systems, 2010.*

11. **M. Yu**, W. Ma, J. Xin and S. Osher, Convexity and fast speech extraction by split Bregman method, *pp. 398 - 401, Interspeech 2010.*

12. **M. Yu**, W. Ma, J. Xin and S. Osher, Reducing musical noise in blind source separation by time-domain sparse filters and split Bregman method, *pp. 402 - 405, Interspeech 2010.*

13. **M. Yu**, J. Xin, Y. Qi, H. Yang and F-G Zeng, A nonlocally weighted soft-constrained natural gradient algorithm and blind separation of strong reverberant speech mixtures, *pp. 346-350, 43rd Asilomar Conference on Signals, Systems, and Computers 2009.*

14. **M. Yu**, J. Xin, Y. Qi, H. Yang and F-G Zeng, A nonlocally weighted soft-constrained natural gradient algorithm for blind separation of reverberation speech, *pp. 81 - 84, WASPAA 2009.*

Presentations

1. Feature-weighted hierarchical sparse learning for semantic concept identification, UCI image processing seminar, 2011.

2. Convexity and fast speech extraction by split Bregman method, Interspeech 2010.

3. Reducing musical noise in blind source separation by time-domain sparse filters and split Bregman method, Interspeech 2010.

4. What can sparseness do in the microphone array speech signal processing?, Microsoft Research Asia, 2010.

5. Bayesian inference based compressive sensing for image and speech compression, UCI image processing seminar, 2009.

6. A nonlocally weighted soft-constrained natural gradient algorithm and blind separation of strong reverberant speech mixtures, 43rd Asilomar Conference on Signals, Systems, and Computers 2009.

7. A nonlocally weighted soft-constrained natural gradient algorithm for blind separation of reverberation speech, WASPAA 2009.

8. A numerical method of Landau-Brazovskii model, International Conference on Calculus of Variations, PDEs and Nonlinear, 2006.

Skills

Operating Systems/Programming/Software: Linux, Mac OS X, Windows; C, Java, Objective C, Lingo, Matlab, Maple; Excel, WinBUGS, Praat
Language: Chinese (native), English (fluent)

Coursework

Bayesian Networks	Machine Learning	Data Compression
Computer Vision	Signal Processing	Programming Languages
Algorithms	Data Structure	Artificial Intelligence
Operation Research	Optimization Methods	Mathematical Statistics
Numerical Analysis	Scientific Computing	Partial Differential Equations
Probability Theory	Stochastic Process	Time Series