

# Junsong Yuan

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## CONTACT INFORMATION

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Evanston, IL, USA 60208

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## RESEARCH INTERESTS

Computer Vision and Machine Learning  
Data mining and Knowledge Discovery  
Multimedia Content Understanding, Mining and Search  
Image and Video Processing and Content Analysis

## EDUCATION

**Northwestern University**, Evanston, Illinois, USA

Doctor of Philosophy Candidate in Electrical Engineering, August, 2009

Advisor: Professor Ying Wu

**National University of Singapore**, Singapore

Master of Engineering in Electrical and Computer Engineering, January, 2005

Advisor: Professor Qi Tian

**Huazhong University of Science and Technology**, Wuhan, P.R.China

*Special Program for the Gifted Young*

Bachelor of Engineering, Communication Engineering, July, 2002

## ACADEMIC RESEARCH EXPERIENCE

**Northwestern University**, Evanston, Illinois USA

*Research Assistant*

**January, 2005 - present**

**National University of Singapore**, Singapore

*Research Assistant*

**January, 2003 - December, 2004**

**Huazhong University of Science and Technology**, Wuhan, P.R.China

*Research Assistant*

**October, 2001 - September, 2002**

## INDUSTRY RESEARCH EXPERIENCE

**Microsoft Research**, Redmond, Washington, USA

*Research Intern*

**June - September, 2008**

- Collaborated with Dr. Zicheng Liu and Dr. Zhengyou Zhang for action analysis and detection

**Kodak Research Laboratory**, Rochester, New York, USA

*Research Intern*

**June - September, 2007**

- Collaborated with Dr. Jiebo Luo for visual event categorization in consumer photos

**Motorola Laboratory**, Schaumburg, Illinois, USA

*Research Intern*

**June - September, 2006**

- Collaborated with Dr. Wei Wang, Dr. Zhu Li and Dr. Dongge Li for repetitive clip discovery

TEACHING  
EXPERIENCE

**EECS Department, Northwestern University**

*Teaching Assistant*  
EECS 495, Web Info Retrieval and Extraction

**Spring Quarter, 2009**

*Teaching Assistant*  
EECS 332, Digital Image Analysis

**Fall Quarter, 2006**

*Teaching Assistant*  
ECE 230, Programming for Computer Engineer

**Winter Quarter, 2006**

HONORS AND  
AWARDS

Selected in Marquis Who's Who in Amrecia, 2010  
Nanyang Assistant Professorship, Nanyang Technological University, Singapore, 2009  
Doctoral Spotlight Award, IEEE Computer Vision and Pattern Recognition (CVPR), 2009  
Student Travel Grant Award, IEEE Computer Vision and Pattern Recognition (CVPR), 2008  
Student Travel Grant Award, ACM Knowledge Discovery and Data Mining (SIGKDD), 2007  
Excellent Graduation Thesis Award, Huazhong University of Science and Technology, 2002  
National Outstanding Student, by Ministry of Education, P.R.China, 2001 (100 from entire China)  
Hu Chunan Fellowship, by Ministry of Education, P.R.China, 2001 (100 from entire China)  
Outstanding College Student of Hubei Province, Hubei Province, P.R.China, 2001  
Model of Outstanding Students, HUST, 2000 (20 out of 30,000)

PATENTS

Zicheng Liu and **Junsong Yuan**, "Efficient action detection through sub-volume mutual information maximization", filed on 05/2009

Jiebo Luo and **Junsong Yuan**, "Image classification using capture-location-sequence information", US Patent pending, filed on 04/2008

**Junsong Yuan**, Wei Wang, Zhu Li and Dongge Li, "Method and apparatus for video clip searching and mining", US Patent pending, filed on 03/2007

JOURNAL  
PUBLICATIONS

**Junsong Yuan**, Jingjing Meng, Ying Wu and Jiebo Luo, "Mining Recurring Events through Forest Growing", in *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, Vol. 18, No. 11, pp.1597-1607, Nov. 2008.

Yun Fu, Zhu Li, **Junsong Yuan**, Ying Wu and Thomas S. Huang, "Locality vs. Globality: Query-Driven Localized Linear Models for Facial Image Computing", in *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, Vol.18, No.12, pp.1741-1752, Dec. 2008.

Heng Chen, **Junsong Yuan** and Yuanjie Li, "An Application of Chaos Synchronization in Secure Audio Communication," In *Journal of Physics and Engineering*, Vol. 11, No.1, 2001 (In Chinese).

BOOK CHAPTERS

**Junsong Yuan** and Ying Wu, "Common pattern discovery in multimedia data mining", book chapter in *Encyclopedia of Data Warehousing and Mining (2nd Edition)*, Edited by J. Wang, Idea Group Inc., 2008

Zhu Li, Yun Fu, **Junsong Yuan**, Ying Wu, A. K. Katsaggelos and Tomas S. Huang, Multimedia Data Indexing, book chapter in *Semantic Mining Technologies for Multimedia Databases*, Ed. D. Tao, D. Xu, and X. Li, Idea Group Inc. (*in press*)

Jiang Xu, **Junsong Yuan** and Ying Wu, “Multimodal Partial Estimates Fusion”, in *Proc. Int’l Conf. on Computer Vision (ICCV’09)*, 2009.

**Junsong Yuan**, Zicheng Liu and Ying Wu, “Discriminative 3D Subvolume Search for Efficient Action Detection”, to appear in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’09)*, 2009 (**CVPR’09 Doctoral Spotlight Award**).

**Junsong Yuan** and Ying Wu, “Context-aware clustering”, in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’08)*, 2008 ([31.9%]).

**Junsong Yuan**, Jiebo Luo and Ying Wu, “Mining compositional features for boosting”, in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’08)*, 2008 ([31.9%]).

**Junsong Yuan**, Jiebo Luo, Henry Kautz and Ying Wu, “Mining GPS Traces and Visual Words for Event Classification”, in *Proc. ACM Intl. Conf. on Multimedia Information Retrieval (ACM MIR’08)*, pp.2-9, 2008 (*invited oral paper*).

Jingjing Meng, **Junsong Yuan**, Mat Hans and Ying Wu, “Mining Motifs from Human Motion”, in *Proc. EUROGRAPHICS’08*, 2008 (*short paper* [~35%]).

**Junsong Yuan** and Ying Wu, “Spatial random partition for common visual pattern discovery”, in *Proc. Int’l Conf. on Computer Vision (ICCV’07)*, pp.1-8, 2007 ([23%]).

**Junsong Yuan**, Ying Wu and Ming Yang, “From Frequent Itemsets To Semantically Meaningful Visual Patterns”, in *Proc. ACM Int’l Conf. on Knowledge Discovery and Data Mining (SIGKDD’07)*, pp.864-873, 2007 (*oral* [17.9%]).

**Junsong Yuan**, Wei Wang, Jingjing Meng, Ying Wu and Dongge Li, “Mining repetitive clips through finding continuous paths,” in *Proc. ACM Int’l Conf. on Multimedia (MM’07)*, pp.289-292, 2007 (*short paper* [27%]).

**Junsong Yuan**, Ying Wu and Ming Yang, “Discovery of Collocation Patterns: from Visual Words to Visual Phrases,” in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’07)*, 2007 ([28.1%]).

Ming Yang, **Junsong Yuan** and Ying Wu, “Spatial selection for attentional visual tracking,” in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR’07)*, 2007 ([28.1%]).

**Junsong Yuan**, Zhu Li, Yun Fu, Ying Wu and Thomas S. Huang, “Common spatial pattern discovery by efficient candidate pruning,” in *Proc. IEEE Conf. on Image Processing (ICIP’07)*, pp. 165-168, 2007 (*oral* [16.8%]).

Yun Fu, **Junsong Yuan**, Zhu Li, Ying Wu and Thomas S. Huang, “Query-driven locally adaptive fisher faces and expert-model for face recognition,” in *Proc. IEEE Conf. on Image Processing (ICIP’07)*, pp.141-144, 2007 (*oral* [16.8%]).

Zhu Li, Yun Fu, **Junsong Yuan**, Ying Wu and Thomas S. Huang, “Query driven localized linear discriminant models for head pose estimation,” in *Proc. IEEE Conf. on Multimedia and Expo (ICME’07)*, pp. 1810-1813, 2007 (*oral* [16%] ICME ’07 Best Paper Candidate from HCI Track).

**Junsong Yuan**, Ling-Yu Duan, Qi Tian and Changsheng Xu, “Fast and Robust Short Video Clip Search Using an Index Structure,” in *Proc. of 6th ACM International Workshop on Multimedia Information Retrieval in conjunction with ACM Multimedia’04 (MIR’04)*, pp.65-68, 2004 (*oral* [25%]).

Ling-Yu Duan, **Junsong Yuan**, Qi Tian and Changsheng Xu, "Fast and Robust Short Video Clip Search Using an Index Structure," in *Proc. of ACM Int'l Conf. on Multimedia* (MM'04), pp.756-757, 2004.

**Junsong Yuan**, Qi Tian and Surendra Ranganath, "Fast and Robust Search Method for Short Video Clips from Large Video Collection," in *Proc. of 17th International Conference on Pattern Recognition* (ICPR'04), pp.866-869, 2004.

**Junsong Yuan**, Ling-Yu Duan, Qi Tian, Surendra Ranganath and Changsheng Xu, "Fast and Robust Short Video Clip Search for Copy Detection," in *Proc. of 2004 Pacific-Rim Conference on Multimedia* (PCM'04), Published by *Lecture Notes in Computer Science (LNCS)*, pp.479-488, 2004 (*invited*).

PROFESSIONAL  
ACTIVITIES

Service for Refereed Conferences and Journals

*Member*, Institute of Electrical and Electronics Engineers (IEEE)

*Member*, Association for Computing Machinery (ACM)

*Member of Editorial Board*, International Journal of Data Mining, Modelling and Management

*Committee Member*, International Conference on Computer Vision 2009 (ICCV'09)

*Reviewer*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*PAMI*),

*Reviewer*, IEEE Trans. on Circuits and Systems for Video Technology (*CSVT*),

*Reviewer*, IS&T/SPIE Visual Communications and Image Processing (*VCIP*),

*Reviewer*, Elsevier Information Sciences,

*Reviewer*, SPIE Journal of Electronic Imaging (*JEI*),

*Reviewer*, EURASIP Journal on Applied Signal Processing (*JASP*),

*Reviewer*, European Conf. on Computer vision (*ECCV*),

*Reviewer*, IEEE Conf. on Computer vision and Pattern Recognition (*CVPR*),

*Reviewer*, IEEE Conf. on Computer vision (*ICCV*),

*Reviewer*, IEEE Conf. on Multimedia Expo (*ICME*),

*Reviewer*, IEEE Conf. on Semantic Computing (*ICSC*),

*Reviewer*, Asian Conf. on Computer Vision (*ACCV*),

*Reviewer*, Intl. Conf. on Pattern Recognition (*ICPR*),

*Reviewer*, IEEE Intl. Symposium on Multimedia