

# Zhuolin Jiang

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Ph. D., Assistant Research Scientist,  
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## Employment

- University of Maryland, College Park 2011.11-Present  
*Assistant Research Scientist*
- University of Maryland, College Park 2010.06-2011.10  
*Research Associate*

## Education

- Exchange PhD Student University of Maryland, College Park 2008.09–2010.05
- Doctor South China University of Technology (SCUT) 2006.09–2008.06  
Computer Science GPA: 3.51/4.0 Guangzhou, China
- Master South China University of Technology (SCUT) 2004.09–2006.07  
Computer Science GPA: 3.43/4.0 Rank: top15/130 Guangzhou, China
- Bachelor China University of Petroleum (CUP) 2000.09–2004.07  
Computer Science GPA: 3.53/4.0 Rank: 1/113 Dongying, China

## Publications

### Conference Papers:

- Qiang Qiu, **Zhuolin Jiang**, Rama Chellappa. Sparse Dictionary-based Representation and Recognition of Action Attributes. IEEE Conference on Computer Vision (ICCV), 2011.
- **Zhuolin Jiang**, Zhe Lin, Larry S. Davis. Learning a Discriminative Dictionary for Sparse Coding via Label Consistent K-SVD. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011.
- **Zhuolin Jiang**, Zhe Lin, Larry S. Davis. A Tree-based Approach to Integrated Action Localization, Recognition and Segmentation. Third Workshop on Human Motion (In conjunction with ECCV), 2010.
- Zhe Lin, **Zhuolin Jiang**, Larry S. Davis. Recognizing Actions by Shape-Motion Prototype Trees. IEEE 12th International Conference on Computer Vision (ICCV), 2009: 444-451.
- **Zhuolin Jiang**, Shaofa Li, Xiping Jia, Hongli Zhu. An Improved Mean Shift Tracking Method Based on Nonparametric Clustering and Adaptive Bandwidth. Proceedings of 2008 International Conference on Machine Learning and Cybernetics, 2008, 5:2779-2784.
- **Zhuolin Jiang**, Shaofa Li, Dongfa Gao. An Adaptive Mean Shift Tracking Method Using Multiscale Images. Proceedings of the 2007 International Conference on Wavelet Analysis and Pattern Recognition, 2007, 3: 1060-1066.
- **Zhuolin Jiang**, Shaofa Li, Dongfa Gao. A Time Saving Method for Human Detection in Wide Angle Camera Images. Proceedings of 2006 International Conference on Machine Learning and Cybernetics, 2006, 7: 4029-4034.

- Dongfa Gao, **Zhuolin Jiang**, Ming Ye. A New Approach of Dynamic Background Modeling for Surveillance Information. Proceedings of 2008 International Conference on Computer Science and Software Engineering, 2008, 1:850-855.
- Xiping Jia, Hong Peng, Qilun Zheng, **Zhuolin Jiang**, Zhao Li. A Topic-based Document Correlation Model. Proceedings of 2008 International Conference on Machine Learning and Cybernetics, 2008, 5: 2487-2491.

### Journal Papers:

- **Zhuolin Jiang**, Zhe Lin, Larry S. Davis. Class Consistent k-means: Application to Face and Action Recognition. Computer Vision and Image Understanding, 2011. (*under major revision*)
- **Zhuolin Jiang**, Zhe Lin, Larry S. Davis. Recognizing Human Actions by Learning and Matching Shape-Motion Prototype Trees. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2012, 34(3): 533-547.
- **Zhuolin Jiang**, Shaofa Li, Dongfa Gao. Design and Implementation of a Blackboard-based System for Human Detection. Computer Engineering, 2008, 34(2): 196-198. (In Chinese)
- **Zhuolin Jiang**, Shaofa Li, Xiping Jia, Hongli Zhu. Research on Classic Triangular Mesh Subdivision. Computer Engineering, 2009, 35(6): 7-10. (In Chinese)
- **Zhuolin Jiang**, Shaofa Li, Xiping Jia, Hongli Zhu. Target Tracking Based on Nonparametric Clustering and Multiscale Images. Journal of South China University of Technology: Natural Science Edition, 2009, 37(1): 34-41. (In Chinese)
- Rendao Shen, Shaofa Li, **Zhuolin Jiang**. A Fast and Accurate Method of Uniform-colored Video Text Extraction. Computer Engineering, 2009, 35(9): 214-216. (In Chinese)
- Shengan Zhou, Shaofa Li, **Zhuolin Jiang**. Fast and Automatic Method of Human Body Matting with Constant Color Background. Computer Applications, 2009, 28(12): 179-181. (In Chinese)
- Lina Ge, Zhonghua He, **Zhuolin Jiang**. Encryption Algorithm Based on Circle Property. Computer Engineering, 2009, 35(4): 180-182. (In Chinese)
- Xiping Jia, Hong Peng, Qilun Zheng, Shixu Shi, **Zhuolin Jiang**. A Topic-Based Document Retrieval Model. Journal of South China University of Technology: Natural Science Edition, 2008, 36(9): 37-42. (In Chinese)

### Theses:

- Doctoral Dissertation. Research on Computer Vision-based Human Action Detection and Recognition. 2010. 07.
- Bachelor Dissertation. Research on Triangular Mesh Subdivision Algorithms. 2004. 07.

### Research Experience

Research Associate

2011, 03 – Present

Professor Larry S. Davis

UMD

#### **Research on Efficient Object Detection and Tracking**

- Made a full study of fast and robust object detection algorithms

- Developed a robust object detection system based on tracking and background subtraction
- Proposed a multi-person tracking approach based on human detection and an improved mean shift tracking algorithm

Research Associate 2010, 06 – 2011,02  
Professor Larry S. Davis UMD

**Research on Supervised Dictionary Learning for Object and Action Recognition**

- Make a full study of dictionary learning approaches for sparse representation
- Proposed a supervised dictionary learning algorithm called Label Consistent K-SVD for sparse coding and applied in object recognition
- Proposed supervised vector quantization algorithms based on information theory for object and action recognition

Research Associate 2008, 09–2010, 05  
Professor Larry S. Davis UMD

**Research on Action Localization and Recognition**

- Made a full study of previous approaches of human action localization and recognition
- Proposed a shape-motion prototype tree based approach to recognize human gestures and actions efficiently
- Proposed a detection-based tracking approach to track multiple persons with similar appearances and under a cluttered, occluded background
- Experimented with different feature selection methods in a spatial-temporal volume, which is used to efficiently search human actions in videos

Research Assistant 2006, 12–2008, 08  
Professor Shaofa Li SCUT

**Research on Human Motion and Action Understanding**

- The topic of my doctoral dissertation
- Proposed an adaptive mean shift tracking method to track the object of interest spatially and in scale
- Built the object model with a proposed nonparametric method of color clustering
- Made a full investigation on the theory of particle filter and its improved versions
- Experimented with new methods of particle filter, which are used to solve the problems of particle degeneracy

Research Assistant 2005, 10–2006, 11  
Professor Shaofa Li SCUT

**Research on The Intellectualized Recognition System of Human Image**

- Cooperated with the Gree Electric Appliances, Inc. of Zhuhai, China
- Acted as the leader of the project team and took charge of making the whole research schedule and assigning every team member's task
- Designed and implemented the new time-saving algorithms for human detection and tracking executed in PC
- Wrote the concluding reports for the project

- Obtained the valuable experience of leadership and teamwork

Research Assistant 2004, 09–2005, 09  
Professor Shaofa Li SCUT

#### **Research on Object Searching and Tracking in Video Streams**

- A key industrial research project (No.2004B10101032) in Guangdong province, China
- Served as a team member and engaged in algorithm designing of motion detection and object tracking
- Took charge of the majority of coding task
- Had much understanding to the analysis of moving object in video streams, including motion detection, segmentation and tracking

Research Assistant 2003, 09–2004, 07  
Associate Professor Faming Gong CUP

#### **Research on The Algorithms of Triangular Mesh Subdivision**

- The topic of my bachelor dissertation
- Summarized and classified the various algorithms of triangular mesh subdivision
- Proposed an optimization approach on Loop’s algorithm based on prototype realization using Visual C++ and OpenGL
- Gained the honor of Outstanding Bachelor Dissertation of Shandong province, China (only 10 persons all over CUP in 2005)

## **Academic Experience and Service**

- Invited talk, “*Discriminative Dictionary Learning for Sparse Representation*”. Computer Vision Student Seminar, University of Maryland College Park, July 28, 2011.
- Invited talk, “*An Efficient Object Detection System Using Latent SVM*”. Panasonic Research, New Jersey, July 15, 2011.
- Reviewer, *IEEE Transaction on Circuits and Systems for Video Technology*.
- Reviewer, *Image and Vision Computing*.
- Reviewer, *CVPR2011*.
- Poster Presentation, IEEE Conference on Computer Vision and Pattern Recognition (CVPR2011), Colorado Springs, US.
- Oral Presentation, The Fifth International Conference on Wavelet Analysis and Pattern Recognition (ICWAPR2007), Beijing, China.
- Poster Presentation, The Fifth International Conference on Machine Learning and Cybernetics (ICMLC2006), Dalian, China.
- Board Manager, The 4th Graduate symposium of South China University of Technology on Computer Sciences, 2004, Guangzhou, China.

## **Honors and Awards**

- Second-class Scholarship, SCUT (awarded to only 10%) 2007
- First-class Scholarship, SCUT (awarded to the top 6%) 2006

- Outstanding Graduate Students in 2006, SCUT (awarded to the top 6%) 2006
- Second-class Scholarship, SCUT (awarded to only 10%) 2005
- Excellent Graduate-student Cadre, SCUT (awarded to the top 6%) 2005
- Outstanding Bachelor Dissertation of Shandong province, China (only 10 person at CUP) 2006
- Outstanding Bachelor Dissertation, CUP 2004
- Outstanding Graduates in Shandong province, China, CUP 2004
- China Petroleum Scholarship in 2003 (only one person in CS department at CUP) 2003
- Excellent Teaching Assistant, CUP 2003
- Excellent League Leader, CUP 2003
- Scientific and Technical Innovation Scholarship (awarded to the top 5%) 2003
- Excellent Student, CUP (awarded to the top 2.5%) 2003
- Advanced Individual in Social Practice, CUP 2002
- First-class Scholarship, CUP (awarded to the top 3%) 2001–2004