Jia Xu

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Research Interests Computer Vision, Deep Learning, and Optimization

Education

Ph.D. in Computer Sciences — August 2015
University of Wisconsin-Madison, USA
Dissertation: Visual Parsing with Weak Supervision
Committee: Vikas Singh (advisor), Chuck Dyer, Jerry Zhu, Jude Shavlik, Mark Craven

B.S. in Computer Science and Technology — June 2010
Nanjing University, China
Magna Cum Laude

Employment

Senior Research Scientist — August 2015 to Present
Visual Computing Lab, Intel Labs — Manager: Vladlen Koltun

Research Assistant — June 2011 to July 2015
Department of Computer Sciences, UW-Madison — Advisor: Vikas Singh

Visiting Student — August 2014
Department of Computer Science, University of Toronto, Canada — Advisor: Raquel Urtasun

Visiting Student — June 2013 to August 2013
Toyota Technological Institute at Chicago (TTI-Chicago) — Advisor: Raquel Urtasun

Research Assistant/Intern — September 2010 to May 2011
ApplCore Group, Epic, Madison, WI — Team Leader: Ravindra Karonde

Publications

1. Qifeng Chen*, **Jia Xu***, Vladlen Koltun. *Fast Image Processing with Fully-Convolutional Networks*. In International Conference on Computer Vision (ICCV), October 2017. (*Joint first authors)
2. **Jia Xu**, René Ranftl, Vladlen Koltun. *Accurate Optical Flow via Direct Cost Volume Processing*. In Computer Vision and Pattern Recognition (CVPR), July 2017.
3. **Jia Xu**, Alexander G. Schwing, Raquel Urtasun. *Learning to Segment with Various Forms of Weak Supervision*. In Computer Vision and Pattern Recognition (CVPR), June 2015.
4. **Jia Xu**, Lopamudra Mukherjee, Yin Li, Jamieson Warner, James M. Rehg, Vikas Singh. *Gaze-enabled Egocentric Video Summarization via Constrained Submodular Maximization*. In Computer Vision and Pattern Recognition (CVPR), June 2015.
5. Hyunwoo Kim, **Jia Xu**, Baba C. Vemuri, Vikas Singh. *Manifold-valued Dirichlet Processes*. In International Conference on Machine Learning (ICML), July 2015. **Oral**
6. **Jia Xu**, Alexander G. Schwing, Raquel Urtasun. *Tell Me What You See and I will Show You Where It Is*. In Computer Vision and Pattern Recognition (CVPR), June 2014.

7. **Jia Xu**. *Joint Visual and Textual Mining on Social Media*. In International Conference on Data Mining (ICDM) PhD Forum, December 2014. **Oral**
8. Maxwell D. Collins, Ji Liu, **Jia Xu**, Lopamudra Mukherjee, Vikas Singh. *Spectral Clustering with a Convex Regularizer on Millions of Images*. In European Conference on Computer Vision (ECCV), September 2014.
9. **Jia Xu**, Vamsi K. Ithapu, Lopamudra Mukherjee, James M. Rehg, Vikas Singh. *GOSUS: Grassmannian Online Subspace Updates with Structured-sparsity*. In International Conference on Computer Vision (ICCV), December 2013.
10. **Jia Xu**, Maxwell D. Collins, Vikas Singh. *Incorporating User Interaction and Topological Constraints within Contour Completion via Discrete Calculus*. In Computer Vision and Pattern Recognition (CVPR), June 2013.
11. Lopamudra Mukherjee, Vikas Singh, **Jia Xu**, Maxwell D. Collins. *Analyzing the Subspace Structure of Related Images: Concurrent Segmentation of Image Sets*. In European Conference on Computer Vision (ECCV), October 2012.
12. Maxwell D. Collins, **Jia Xu**, Leo Grady, Vikas Singh. *Random Walks based Multi-Image Segmentation: Quasiconvexity Results and GPU-based Solutions*. In Computer Vision and Pattern Recognition (CVPR), June 2012.

Research Grants

1. 2014 $\sim$ 2015. Adobe Research Gift. $19,000. "Automatic/Interactive Object Segmentation".
2. 2014. NVIDIA Academic Hardware Gift. $\sim$$5,000. "Image Segmentation with Convolutional Neural Networks".
3. 2014. NVIDIA Academic Hardware Gift. $\sim$$5,000. "Group Sparsity Regularized Subspace Tracking for Video Segmentation".
4. 2009 $\sim$ 2010. Sun-China Innovation Grant. CNY 20,000. "Real-time Simulation Of Natural Phenomena: A General Particle System Built for Wonderland".

Honors and Awards

1st Place in the Sintel Optical Flow Benchmark	2016 $\sim$ present
ICML 2015 Travel Scholarship	2015
CVPR 2015 Doctoral Consortium	2015
Vilas Conference Presentation Award	2014
ICDM 2014 Student Travel Award	2014
ICCV 2013 Student Travel Award	2013
Machine Learning Summer School Scholarship	2011
UW-Epic Research Fellowship	2010
Excellent Project of Sun-China Innovation Program (Top 6)	2010
Second Prize in the Innovation Asia 2009 (4/625)	2009
Hong Kong and Shanghai Bank Corporation (HSBC) Scholarship (Top 1%)	2009
Runner-up in the 1st Multimedia Design Competition of Nanjing University	2008
Almon-Wang Scholarship (Top 5%)	2008
Renming Scholarship (Top 5%)	2007, 2008
Third Prize in the 9th ACM/ICPC at Nanjing University (Top 20%)	2007

Teaching Experiences

Teaching Assistant January 2015 to May 2015
CS 766: Computer Vision, UW-Madison Instructor: Vikas Singh

- Top 2 highest-rated classes among all the Computer Sciences courses.

Teaching Assistant January 2014 to May 2014
CS 766: Computer Vision, UW-Madison Instructor: Vikas Singh

- Create and maintain an online classroom on Canvas. Interact and help students with questions on lectures and assignments
- Introduce a new component to broaden students' sight on modern computer vision advances: students review one paper from the most popular papers ($10 \sim 15$) in recent CVPR/ICCV/ECCV (with one conference set per week)
- Guide students through class assignments and multi-week final research projects
- Give a guest lecture on scene classification

Teaching Assistant January 2013 to May 2013
BMI/CS 767: Methods in Medical Image Analysis, UW-Madison Instructor: Vikas Singh

- Create problem sets for the students to learn computational methods and programming
- Guide students through class assignments and final projects

Outreach Experiences

UW-Madison Science Expeditions April 2013
Main Organizer for *Interactive Demonstration on Temperature and Volume Expansion*

Wisconsin Science Festival October 2012
Main Organizer for *Interactive Parsing/Segmentation of Large Sets of Images*

Professional Activities

Grant Reviewer:

- Czech Science Foundation

Journal Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Biomedical Engineering (TBME)
- IEEE Transactions on Human-Machine Systems (THMS)
- Journal of Mathematical Imaging and Vision (JMIV)
- Pattern Recognition
- Signal Processing

Conference Program Committee/Reviewer:

- Computer Vision and Pattern Recognition (CVPR), 2016 - present
- International Conference on Computer Vision (ICCV), 2015 - present
- European Conference on Computer Vision (ECCV), 2016 - present

- Asian Conference on Computer Vision (ACCV), 2016 - present
- British Machine Vision Conference (BMVC), 2017 - present
- AAAI Conference on Artificial Intelligence (AAAI), 2014 - present
- International Joint Conference on Artificial Intelligence (IJCAI), 2015

External Conference Reviewer:

- International Conference on Computer Vision (ICCV), 2013
- Computer Vision and Pattern Recognition (CVPR), 2013, 2014, 2015
- European Conference on Computer Vision (ECCV), 2012

Extracurricular Activities

- Student Volunteer of International Conference on Machine Learning (ICML), 2015
- Student Volunteer of Computer Vision and Pattern Recognition (CVPR), 2013, 2014
  Organizer of the Computer Vision Reading Group, University of Wisconsin-Madison (January 2013 to May 2013)
- President of the Graduation Union of Computer Science and Technology Department at Nanjing University (2009-2010)
- Captain of the volleyball team of Computer Science and Technology Department at Nanjing University (2007-2009)
- Head of the Organizing Section of the Student Union of Computer Science and Technology Department, Nanjing University (2007-2008)

Reference Available upon request