

Junlan Yang

CONTACT INFORMATION	<i>Address:</i> 136 O'connor St, Menlo Park, CA, 94025, USA	<i>Tel:</i> (001) 312-532-0251 <i>E-mail:</i> julia.jyang@gmail.com <i>Webpage:</i> www.junlanyang.net
TECHNICAL SPECIALTIES	Stereo depth sensing, high dynamic range (HDR) imaging, coded aperture imaging, digital refocusing, super-resolution, image deblurring, denoising, stabilization, motion estimation, segmentation, visual tracking, pose estimation.	
EDUCATION	University of Illinois at Chicago , Chicago, IL, USA, 08/2005 - 05/2010 <i>Department of Electrical and Computer Engineering</i> Ph.D., Electrical Engineering, GPA: 4.0/4.0 Advisor: Prof. Dan Schonfeld Dissertation: "Virtual Video Enhancement for Mobile Cameras: Stabilization, Auto-Focus and Super-resolution" Zhejiang University , Hangzhou, Zhejiang, China, 09/2001-06/2005 <i>Department of Information Science and Electronic Engineering</i> B.S., Information Engineering, GPA: 3.81/4.0 Dissertation: "Software Exploration of Digital TV Set Top Box"	
AWARDS AND HONORS	IBM Student Paper Award, International Conference on Image Processing, 2007. Student Travel Award, UIC Graduate College and Graduate Student Council, 2006, 2007. Outstanding Graduating Senior, Zhejiang University, 2005. Best Student Dissertation Award, Zhejiang University, 2005. University Scholarship, Zhejiang University, 2004, 2003, 2002.	
WORKING EXPERIENCE	iKoa Corporation, Menlo Park, CA 12/2009 - Present Senior software engineer, Software Team for Digital Cameras - Development of advanced computational photography algorithms including HDR, lowlight imaging, digital focus/refocus, depth sensing and 3D. - Implementation of coded-aperture cameras for post-capture focus/exposure editing functionality. - Implementation of two-camera stereo systems for accurate depth sensing as well as HDR. Sharp Laboratories of America, Camas, WA 05/2009 - 08/2009, 05/2008 - 08/2008 Summer research intern, Advanced Video & Display Technology Group - Algorithm development on adaptive spatial/temporal filtering for video denoising (2009). - Invention of a novel image deblurring technique based on Non-Local-Means method (2008). - <i>Pending patent:</i> Peter van Beek and Junlan Yang , "Methods and Systems for Imaging Processing", US 2010/0215282. Ricoh Innovations Inc., Menlo Park, CA 05/2007 - 08/2007 Summer research intern, California Research Center - Algorithm development on joint design of image processing and optical imaging. - Implementation of an adaptive image acquisition process whose parameters are optimized by image processing predictors. - <i>Pending patent:</i> M. Dirk Robinson, Junlan Yang and David G. Stork, "Adaptive image acquisition for multiframe reconstruction", US 2009/0245688.	
ACADEMIC EXPERIENCE	University of Illinois at Chicago Research assistant, Multimedia Communications Laboratory	08/2005 - 11/2009

- **Project: Theoretical Study on Video Super-Resolution Algorithms** 02/2008 - 09/2009
 - Present theoretical results on the performance of video super-resolution techniques including frequency and learning-based algorithms especially algorithms based on Bayesian network.
 - Provide quantitative measurements on the improvement introduced by exploiting inter-frame information between video frames.
- **Project: Virtual Focusing from Defocused Video Sequences** 10/2006 - 01/2008
 - Provide an image processing solution to recover focused image sequences from videos taken by an out-of-focus camera with fixed physical parameters (cellphone cameras and webcams).
 - Approach the classic image processing problem with a computer vision perspective.
 - Deal with cameras with fixed lens by incorporating camera motion and imaging model.
 - Utilize multi-frame for estimation of the blur system and reconstruction of the focused image.
 - *Invention disclosure*, filed with Motorola Labs, Schaumburg, IL, 2008.
- **Project: Video Stabilization based on Particle Filter Tracking** 08/2005 - 09/2006
 - Propose and implement a complete system for stabilizing the jittered video sequence resulting from unsteady hand or moving platforms.
 - Extend particle filtering on object tracking to tracking of projected camera motion parameters. Prove analytically and experimentally the scheme achieves robust and accurate performance.
 - Explore efficient sampling scheme based on feature matching to reduce computational cost.
 - *Invention disclosure*, filed with Motorola Labs, Schaumburg, IL, 2006.

PUBLICATIONS

Journal Papers

- **Junlan Yang** and Dan Schonfeld, "Virtual Focus and Depth Estimation from Defocused Video Sequences", *IEEE Transactions on Image Processing*, Volume 19, Issue 3, March 2010.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Robust Video Stabilization Based on Particle Filter Tracking of Projected Camera Motion", *IEEE Transactions on Circuits and Systems for Video Technology*, Volume 19, Issue 7, July 2009.

Conference Papers

- Peter van Beek, **Junlan Yang**, Shuhei Yamamoto and Yasuhiro Ueda, "Image Deblurring and Denoising with Non-local Regularization Constraint", *SPIE Proceedings of Electronic Imaging, Conference on Visual Information Processing and Communication, San Jose, CA, 2010*.
- **Junlan Yang** and Dan Schonfeld, "New Results on Performance Analysis of Super-Resolution Image Reconstruction", *IEEE International Conference on Image Processing, Cairo, Egypt, 2009*.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Focused Video Estimation from Defocused Video Sequences", *SPIE Proceedings of Electronic Imaging, Conference on Visual Communications and Image Processing (VCIP), San Jose, CA, 2008*.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Robust Focused Image Estimation from Multiple Images in Video Sequences", **IBM Best Student Paper Award**, *IEEE International Conference on Image Processing, San Antonio, TX, 2007*.
- Chong Chen, Dan Schonfeld, **Junlan Yang**, and Magdi Mohamed, "Pose Estimation from Video Sequences Based on Sylvester's Equation", *Electronic Imaging (VCIP), San Jose, CA, 2007*.
- **Junlan Yang**, Dan Schonfeld, Chong Chen and Magdi Mohamed, "Online Video Stabilization Based on Particle Filter", *IEEE International Conference on Image Processing, Atlanta, GA, 2006*.

PROFESSIONAL SERVICES

- Project coordinator in IEEE Signal Processing Society, Chicago Chapter, 2009.
- Reviewer for IEEE Transactions on Image Processing, Circuits and Systems for Video Technology, IEEE International Symposium on Circuits and Systems, Signal Processing Letters, International Journal of Computer Graphics (Springer).

SKILLS

- Programming Languages: Matlab, C/C++, OpenCV Library.
- EE courses: Adaptive digital filters; Random signal analysis; Advanced digital communication; Image analysis and computer vision; Detection and estimation; Information theory.
- Math & Statistics background: Real analysis, Probability theory, Game theory.