Junlan Yang

CONTACT INFORMATION

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OBJECTIVE

Seeking permanent positions and internship positions in the field of image and video processing.

EDUCATION

University of Illinois at Chicago, Chicago, IL, USA
Department of Electrical and Computer Engineering

Ph.D. Candidate, Electrical Engineering, 08/2005- Present (expected 10/2009)
Advisor: Prof. Dan Schonfeld
GPA: 4.0/4.0

Zhejiang University, Hangzhou, Zhejiang, China
Department of Information Science and Electronic Engineering

B.S., Information Engineering, 09/2001-06/2005
Dissertation Title: "Software Exploration of Digital TV Set Top Box"
Overall GPA: 3.81/4.0, Major GPA: 3.92/4.0

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.
Outstanding Students Honor, Zhejiang University, 2004, 2003.
Excellent Volunteer Honor, Zhejiang University, 2003.
Dean's List, Zhejiang University, 2002.

ACADEMIC EXPERIENCE

University of Illinois at Chicago
Research Assistant 08/2005 - Present
Multimedia Communications Laboratory, Dept. of ECE

- ***Project 3:*** **Video Super-Resolution based on Bayesian Network** 02/2008 - Present
  - Ongoing research. Develop super-resolution algorithms based on probabilistic graphical models with an emphasis on dealing with videos.

- ***Project 2:*** **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.
  - Additional study on estimation of phase transfer function and noise analysis.

- ***Project 1:*** **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.

Zhejiang University

- **Senior Design: Software Architecture of Digital TV Set-top Box** 02/2005 - 06/2005
  - Study the complete software system operating on a Digital TV Set-top Box with a concentration of designing interface components for various television sets.

- **Student Research Training: Anti-theft Alarm Equipment Design** 03/2004 - 09/2004
  - Design and build the circuit of an motion-activate alarm system, experiment and present before the funding committee.

INTERNSHIP EXPERIENCE

Sharp Laboratories of America, Camas, WA 05/2009 - 08/2009, 05/2008 - 08/2008
- Summer Intern Projects: Algorithm development and testing on spatial/temporal filtering for video upconversion (2009) and super-resolution techniques for product inspection (2008).
- Supervisors: Dr. Peter van Beek, Dr. Yeping Su and Dr. Ibrahim Sezan.

Ricoh Innovations Inc., California Research Center, Menlo Park, CA 05/2007 - 08/2007
- Summer Intern Project: Algorithm development and testing on image processing and optical system joint design.
- Supervisors: Dr. Dirk Robinson and Dr. David Stork.

PUBLICATIONS

Journal Papers

- **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.
- **Junlan Yang** and Dan Schonfeld, "Virtual Focus and Depth Estimation from Defocused Video Sequences", *IEEE Transactions on Image Processing*, accepted.

Conference Papers

- **Junlan Yang** and Dan Schonfeld, "New Results on Performance Analysis of Super-Resolution Image Reconstruction", *IEEE International Conference on Image Processing (ICIP), Cairo, Egypt, 2009.*
- Peter van Beek, **Junlan Yang**, Shuhei Yamamoto and Yasuhiro Ueda, "Image Deblurring and Denoising with Non-local Regularization Constraint", *SPIE Proceedings of Electronic Imaging: Science and Technology, Conference on Visual Communications and Image Processing (VCIP), San Jose, CA, 2010*, accepted.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Focused Video Estimation from Defocused Video Sequences", *SPIE Proceedings of Electronic Imaging: Science and Technology, 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 (ICIP), San Antonio, TX, 2007.*
- Chong Chen, Dan Schonfeld, **Junlan Yang**, and Magdi Mohamed, "Pose Estimation from Video Sequences Based on Sylvester's Equation", *SPIE Proceedings of Electronic Imaging: Science and Technology, Conference on Visual Communications and Image Processing(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 (ICIP), Atlanta, GA, 2006.*

PATENTS

- Peter van Beek and **Junlan Yang**, Sharp Labs of America, 2009, filed.
- M. Dirk Robinson, **Junlan Yang** and David G. Stork, Ricoh Innovations Inc., 2008, filed.

- **Junlan Yang**, Yeping Su and Andrew Segall, Invention Disclosure, Sharp Labs of America, 2009.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Virtual Focus and Depth Estimation from Defocused Video Sequences", Invention Disclosure, Motorola Labs, May 2008.
- **Junlan Yang**, Dan Schonfeld and Magdi Mohamed, "Online Video Stabilization for Hand-held Cameras", Invention Disclosure, Motorola Labs, September 2006.

PROFESSIONAL SERVICES

- Student member of the Institute of Electrical and Electronics Engineers (IEEE).
- Project coordinator in IEEE Signal Processing Society, Chicago Chapter.
- Reviewer for IEEE International Symposium on Circuits and Systems (ISCAS), 2008, 2009.
- Reviewer for the IEEE Transactions on Circuits and Systems for Video Technology (TCSVT).
- Reviewer for the IEEE Transactions on Image Processing (TIP).
- Reviewer for the IEEE Signal Processing Letters (SPL).
- Reviewer for the Visual Computer, International Journal of Computer Graphics, Springer.

COMPUTER SKILLS

- Programming Languages: Matlab, C/C++, VHDL.
- Computer database: Chinese National Computer Ranking Examination: Database, Rank 3.
- Softwares: PROTEL, PSPICE, ispDESIGN, CCS, MaxPlus, Dreamweaver, LaTeX.

TECHNICAL SPECIALTIES

Particle filters theory and design, Kalman filters design, motion estimation techniques, image deblurring, denoising, resolution enhancement techniques, imaging models, visual tracking, pose estimation.

MAJOR GRADUATE COURSEWORK

ECE courses: Optimal adaptive digital filters; Random signal analysis; Advanced digital communication; Image analysis and computer vision; Detection and estimation theory; Information theory, Network information theory.
Math & **Statistics courses**: Real analysis; Probability theory; Game theory.