

Chang Yuan

CONTACT INFORMATION

1106C Taylor Ave N
Seattle, WA 98109
USA

Phone: +1-360-818-4491
E-mail: changyuan@gmail.com
WWW: <http://cyuan.org/>

HIGHLIGHTS

- 10+ years' research and development experience in the areas of computer vision and graphics, image and video processing, virtual and augmented reality, and human-computer interaction
- Excellent leadership skills proven by successful and influential research theme creation, technology transfer, and project management
- Experienced in technology planning, and corporate/government proposal development
- Prolific publications (15+ top conference and journal papers) and IPR (30+ US patents)

EDUCATION

University of Southern California, Los Angeles, California, USA

Ph.D. in Computer Science, August 2007
M.S. in Computer Science, May 2005

Tsinghua University, Beijing, China

B.Eng. in Computer Science and Technology (w. honor), July 2001

PROFESSIONAL EXPERIENCE

Amazon, Seattle, Washington, USA

Senior Scientist - Digital

March 2012 - Present

Working on computer vision related aspects of Amazon's next big offering

Sharp Laboratories of America, Camas, Washington, USA

Senior Display Algorithm Researcher

June 2007 - March 2012

Leader and major contributor for next-gen Sharp technologies and products with multiple successful technology transfers, and extensive IP portfolio and academic publications

- Leader of the stereoscopic 3D display and mobile sensing theme. Major contributor for the related projects: visual comfort guided depth adjustment for glasses-based 3D displays, virtual view synthesis for glasses-free 3D displays, and mobile 3D sensor based augmented reality (technology being transferred to Sharp 3D TV and 3D mobile phone product groups)
- Co-leader of the machine vision and production automation theme. Major contributor for the related projects: image enhancement and statistical learning for micron-level LCD panel inspection (transferred to Sharp Sakai factory), and real-time feature based visual object search and surface defect detection (transferred to Sharp IV-S150X embedded vision system)
- Leader of the next-gen display theme. Initiated the wall-size tiled display project and developed viewer reactive rendering algorithms for real-time viewing of giga-pixel images on the SharpWall (177") tiled display (transferred to Sharp digital signage product group).

University of Southern California, Los Angeles, California, USA

Graduate Research Assistant (Advisor: Dr. Gérard G. Medioni)

August 2003 - May 2007

Proposed a novel and comprehensive framework for 2D motion segmentation and 3D volumetric reconstruction of moving objects from video sequences taken by a moving camera.

Microsoft Research, Redmond, Washington, USA

Intern

May 2006 - August 2006

Designed a general framework for improving stability of image interest points. Proposed a machine learning based approach to predict the stability of interest points from their local regions.

Microsoft Research Asia, Beijing, China
Visiting Student (full-time intern)

July 2002 - July 2003

Developed a novel method to extract spatial-temporal object trajectories from videos by merging over-segmented 2D image regions based on their appearance and motion coherence.

REFERRED
PUBLICATIONS

- **Chang Yuan**, Miao Liao, Xiaoyan Hu, Philippos Mordohai, “Depth Sensing and Augmented Reality Technologies for Mobile 3D Platforms,” to appear in the *Proc. of SID Symposium*, 05/2012
- **Chang Yuan**, Huei-Hung Liao, Hao Pan, “Stereoscopic image-inpainting-based, view-synthesis algorithm for glasses-based and glasses-free 3D displays,” in the *Proc. of Stereoscopic Display & Applications, Electronic Imaging*, 01/2012
- Xinyu Xu, **Chang Yuan**, Dean Messing, “Single Viewpoint 3D Graphics Rendering for Non-Flat Tiled Displays,” in the *Proc. of 18th International Display Workshop*, Nagoya, Japan, 12/2011
- Fan Wang, Xinyu Xu, **Chang Yuan**, Peter van Beek, “Supervised and Semi-Supervised Online Boosting Tree for Industrial Machine Vision Application”, in the *Proc. of Sensor KDD 2011 (in conjunction with KDD)*, 08/2011
- **Chang Yuan**, Hao Pan, Scott Daly, “Stereoscopic 3D Content Depth Tuning Guided by Human Visual Models,” in the *Proc. of SID Symposium*, 05/2011
- **Chang Yuan**, “Ambient Environment Reactive Displays,” in the *Proc. of SID Symposium*, 05/2011
- Hao Pan, **Chang Yuan**, Scott Daly, “3D Video Disparity Scaling for Preference and Prevention of Discomfort,” in the *Proc. of SPIE/EI (SD&A)*, 01/2011
- **Chang Yuan**, “Interactive and Natural Viewing of Giga-pixel Images on Large-Size Tiled Displays,” in the *Proc. of SID Symposium*, 05/2010
- Louis Kerofsky, Scott Daly, Xinyu Xu, Sachin Deshpande, **Chang Yuan**, “Power-Efficient LC-TV with Smart Grid Demand Response Functionality,” in the *Proc. of SID Symposium*, 05/2010
- **Chang Yuan**, “Using Large-size 2D Displays to Create 3D Hyper-Realistic See-Through Experiences,” in the *Proc. of 16th International Display Workshops*, Miyazaki, Japan, 12/2009
- Sachin Deshpande, **Chang Yuan**, Scott Daly, and Ibrahim Sezan, “A Large Ultra High Resolution Tiled Display System: Architecture, Technologies, Applications, and Tools,” in the *Proc. of 16th International Display Workshops*, Miyazaki, Japan, 12/2009
- **Chang Yuan**, “Creating Virtual 3D See-Through Experiences on Large-size 2D Displays,” in the *Proc. of IEEE Conf. on Virtual Reality*, pp. 237-238, Lafayette, Louisiana, 03/2009
- **Chang Yuan**, Gérard Medioni, Jinman Kang, and Isaac Cohen, “Detecting Motion Regions in Presence of Strong Parallax from a Moving Camera with Multi-view Geometric Constraints,” *IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)*, vol. 29, no. 9, 2007
- **Chang Yuan** and Gérard Medioni, “Inferring 3D Volumetric Shape of Both Moving Objects and Static Background Observed by a Moving Camera,” in the *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 1-8, 06/2007
- **Chang Yuan** and Gérard Medioni, “3D Reconstruction of Background and Objects Moving on Ground Plane Viewed from a Moving Camera,” in the *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, vol. 2, pp. 2261-2268, 06/2006
- Jinman Kang, Isaac Cohen, Gérard Medioni and **Chang Yuan**, “Detection and Tracking of Moving Objects from a Moving Platform in Presence of Strong Parallax,” in the *Proc. of Intl. Conf. on Computer Vision (ICCV)*, vol. 1, pp. 10-17, 10/2005
- **Chang Yuan**, Yu-Fei Ma, and Hong-Jiang Zhang, “Extracting Video Object’s Motion Trajectory by Velocity Voting,” in the *Proc. of IEEE Pacific-Rim Conf. on Multimedia (PCM)*, vol. 3, pp. 1561-1565, 12/2003

INVITED TALKS

- “Stereoscopic 3D video depth tuning for visual comfort and viewer preference,” Stanford 3D Imaging Workshop, 02/2011
- “Stereoscopic 3D video depth tuning for visual comfort and viewer preference,” Computer Graphics Group, University of Houston, 12/2010

- “Interactive and Natural Giga-pixel Image Viewing on Sharp Wall-size Tiled Displays,” Computer Vision Group, University of Southern California, 09/2010
- “Novel Viewer Reactive and Distributed Rendering algorithms for Sharp Wall-size Tiled Displays,” SID Pacific Northwest Chapter Seminar, 08/2010

PROFESSIONAL
ACTIVITIES

- Program committee member, IEEE Workshop on Applications of Computer Vision (WACV), 2009-2011
- Reviewer, IEEE. Transaction on Image Processing, 2011
- Reviewer, Intl. Journal of Machine Vision and Applications, 2011
- Reviewer, Journal of Electronic Imaging, 2010, 2011
- Reviewer, Journal of Zhejiang University Science, 2009, 2010
- Reviewer, ACM International Conference on Multimedia, 2009
- Program committee member, Workshop on Cloud-Mobile Convergence for Virtual Reality (CM-CVR '09), in conjunction with IEEE VR 2009
- Reviewer, Workshop on 3D User Interface (3DUI '09), in conjunction with IEEE VR 2009
- Reviewer, 14th Intl. Conf. on Image Analysis and Processing (ICIAP), 2007
- Reviewer, IEEE Transaction on Pattern Analysis and Machine Intelligence (PAMI), 2006, 2007

SKILLS

- Programming Languages: C, C++, Matlab, Python, Java
- Programming Tools: MS Visual Studio, gcc, emacs, Subversion, Premake
- Programming Packages: OpenCV, Android SDK, ROS, OpenNI, IPP, OpenGL, OGRE
- Operating Systems: Windows, Unix/Linux, Mac OS

HONORS AND
AWARDS

- Best Technical Demonstration (People’s Choice), Sharp Labs of America, 06/2010 & 06/2011
- Student Travel Award, IEEE Computer Society, 10/2005
- Academic Achievement Award for International Students, University of Southern California, 05/2005
- Outstanding Graduates of Tsinghua University, 07/2001
- Tsinghua University Scholarship, 11/2000 and 11/1998

REFERENCES

Available upon request