William Y. Chang

Contact Information	Shinsung Misozium Apt. 202-2004 Gangdong-gu, Dunchon-dong Seoul, South Korea, 134-706	*Phone:* +82-10-8602-7937 *E-mail:* william.y.chang@gmail.com *WWW:* www.cse.ucsd.edu/∼wychang

Personal Information

US Citizen (by birth), South Korea Citizen (by family)
Born August 26, 1981 in Monterey, California, USA

Research Interests

Computer Graphics and Vision: Surface Reconstruction, Geometry Processing, 3D Image Sensing, Shape Matching, Shape Registration, Data-Driven Modeling and Animation, Image-Based Rendering.

Education

University of California, San Diego, San Diego, CA USA
Ph.D., Computer Science, December 2009.
Adviser: Matthias Zwicker
Thesis Topic: Reconstruction of Dynamic Articulated Models from Range Scans

University of California, San Diego, San Diego, CA USA
M.S., Computer Science, December 2006.
Adviser: Matthias Zwicker

Harvey Mudd College, Claremont, CA USA
B.S. with High Distinction, Mathematics, May 2004.
Second major in music (piano performance).

Refereed Journal Publications

W. Chang and M. Zwicker. Global Registration of Dynamic Range Scans for Articulated Model Reconstruction. In ACM Transactions on Graphics, Vol. 30, No. 3, May 2011.

W. Chang and M. Zwicker. Range Scan Registration Using Reduced Deformable Models. To appear in Computer Graphics Forum (Proceedings of Eurographics 2009), Munich, Germany, March 30 - April 3, 2009.

S. Paris, W. Chang, W. Jarosz, O. Kozhushnyan, W. Matusik, M. Zwicker, and F. Durand . Hair Photobooth: Geometric and Photometric Acquisition of Real Hairstyles. ACM Transactions on Graphics (Proceedings of the ACM Siggraph 2008 conference).

W. Chang and M. Zwicker. Automatic Registration for Articulated Shapes. Computer Graphics Forum (Proceedings of SGP 2008), Copenhagen, Denmark, July 2 - 4, 2008.

E. Miller, R. Libeskind-Hadas, D. Barnard, W. Chang, K. Dresner, W. M. Turner, and J. R. Hartline. On the Complexity of Multicasting in WDM Networks with Tap-and-Continue and Multicast Capable Switches. IEEE Journal on Selected Areas in Communications Special Series Optical Communications and Networking (JSAC-OCN) 22(9):1601–1612, November 2004.

Submitted Publications

Y. Cui, W. Chang, T. Noll, and D. Stricker. KinectAvatar: Fully Automatic Body Capture Using a Single Kinect. Submitted for review.

Other Publications

W. Chang. Reconstruction of Dynamic Articulated Models from Range Scans. Ph.D. Dissertation, October 2009.

W. Chang. Surface Reconstruction from Points. Technical Report for the Research Exam. UCSD CSE Technical Report CS2008-0922, February 2007.

W. Chang. Image processing with wreath products. Undergraduate Thesis. Harvey Mudd College, May 2004.

Courses and Tutorials

W. Chang, H. Li, N. Mitra, M. Pauly, M. Wand. Dynamic Geometry Processing. Eurographics 2012 course.

W. Chang, H. Li, N. Mitra, M. Pauly, S. Rusinkiewicz, M. Wand. Computing Correspondences in Geometric Data Sets. Eurographics 2011 course.

W. Chang, H. Li, N. Mitra, M. Pauly, M. Wand. Geometric Registration for Deformable Shapes. Eurographics 2010 course.

Presentations

"Dynamic Geometry Processing: Articulated Global Registration." Specialist Seminar, Imaging Media Research Center, Korea Institute of Science and Technology (KIST), June 2012.

"Global Registration of Dynamic Range Scans for Articulated Model Reconstruction." ACM Siggraph, Vancouver, Canada, August 2011.

"Tracking body pose in real-time from depth video." Pixel cafe (UCSD Graphics and Vision Seminar Series), May 2009.

"Range Scan Registration Using Reduced Deformable Models." Eurographics, Munich, Germany, April 2009.

"Range Scan Registration Using Reduced Deformable Models." Pixel cafe (UCSD Graphics and Vision Seminar Series), October 2008.

"Hair Photobooth: Geometric and Photometric Acquisition of Real Hairstyles." ACM Siggraph, Los Angeles, USA, August 2008.

"Automatic Registration for Articulated Shapes." Symposium on Geometry Processing (SGP), Copenhagen, Denmark, July 2008.

"Image Processing with Wreath Products." Annual Arizona Mathematics Undergraduate Conference (AMUC), February 2004.

Posters

W. Chang (Adviser Matthias Zwicker). Constructing Deformable Shapes form Range Scans. Poster Session, Symposium on Geometry Processing, July 2009.

W. Chang (Adviser Matthias Zwicker). Deformable Scan Registration. UCSD Jacobs School of Engineering Research Expo Poster, February 2008.

Academic Services

Student Volunteer: Siggraph 2004, Symposium on Computer Animation 2007

Organizer: Pixel-cafe (UCSD Graphics/Vision Group Research Seminar), Fall 2006

Reviewer:

- Siggraph 2012
- Siggraph Asia 2012
- Eurographics 2009, 2010, 2012
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI) 2009

Awards

Chavin Prize for Best Mathematics Thesis, Harvey Mudd College. May 2004.

Dean's List, Harvey Mudd College. September 2000 $\sim$ May 2004.

First Prize, UCSD CSE 168 Rendering Competition. June 2005. Won a pass to Siggraph 2005 for rendering a realistic animation of reflective and transparent objects in an environment map.

Teaching Experience

University of California, San Diego, San Diego, CA USA

Teaching Assistant *September 2007 to August 2009*

Organized and led weekly hour-long discussion sections, Created and and graded labs, homework assignments, and exams (student evaluations available upon request).

- Winter 2005: CSE 131a - Compiler Construction
- Spring 2005: CSE 152 - Introduction to Computer Vision
- Spring 2006: CSE 101 - Design and Analysis of Algorithms
- Spring 2006: CSE 202 - Algorithm Design and Analysis
- Summer 2006: CSE 141 - Introduction to Computer Architecture
- Spring 2007: CSE 152 - Introduction to Computer Vision
- Spring 2008: CSE 105 - Introduction to the Theory of Computation
- Spring 2009: CSE 120 - Principles of Computer Operating Systems

Professional Experience

Visual Information Processing Lab, Digital Aria, Kyeonggi-do, South Korea

Senior Software Engineer and Team Leader *November 2009 to present*

- Worked in Korea as substitute for mandatory military service, under the "Technical Service Personnel" program sponsored by the Korea Military Manpower Administration (MMA).
- Led a team of 10 people to develop and maintain 2D / 3D graphics libraries optimized for mobile devices and platforms (Android, iOS, Linux, Windows CE).
- Ported a 3D native graphics library to the Android platform.
- Developed algorithms and libraries to triangulate strokes (curves and lines in vector format) for display in OpenGL, manage a large collection of OpenGL ES shaders, and express various blend modes in a software rasterizer.

University of Bern, Bern, Switzerland

Visiting Research Assistant *June 2009 to September 2009*

- Performed research with Dr. Matthias Zwicker on articulated shape registration.

University of California, San Diego, San Diego, CA USA

Research Assistant *September 2004 to May 2009*

- Performed research with Dr. Henrik Wann Jensen and Dr. Matthias Zwicker on efficient data structures for rendering, image-based rendering, and deformable shape registration.
- Developed departmental web pages based on the Plone CMS for the Cognitive Science department.

Medtronic Minimed, Northridge, California

Software Engineer Intern *June 2004 to August 2004*

- Developed database processing software and numerical simulation tools.

Harvey Mudd College, Claremont, California

UNIX Systems Administrator *May 2001 to May 2004*

- Managed campus-wide computer servers and computer labs for the Computing and Information Services department.

Research Assistant *June 2003 to August 2003*

- Performed research with Dr. Weiqing Gu and Dr. Lisette G. de Pillis in Mathematical Biology.

Research Assistant *June 2002 to August 2002*

- Performed research with Dr. Ran Libeskind-Hadas on Optical Networking Algorithms.

Coursework

Mathematics:

- Calculus, Linear Algebra, Abstract Algebra, Combinatorics, Differential Geometry, Mathematical Statistics, Probability, Real Analysis, Applied Analysis

Computer Science and Engineering:

- Algorithms, Architecture, Combinatorial Optimization, Compilers, Theory, Animation, Graphics, Vision, Machine Learning, Operating Systems, Programming Languages

Skills

Languages: Fluent in English and Korean (reading, writing, and speaking)

Computer Programming: C, C++, Java, JavaScript, Perl, PHP, OpenGL, Python, Ruby, HTML UNIX shell scripting, GNU make, Matlab, Maple, Mathematica, Visual Basic

Version Control Management: CVS, SVN, Git

Productivity Applications: LaTeX, BibTeX, Vim, Microsoft Office (Word, Excel, Powerpoint), Adobe Photoshop, Adobe Flash

Operating Systems: Linux, Windows CE/95/98/NT/2K/XP/Vista/7, Android, iOS, Solaris

Press and Media Coverage

"UCSD Computer Science Students Win Top Graphics Awards." Jacobs School News. July 13, 2005.

"Hollywood Hair is Captured at Last: Details in SIGGRAPH 2008 Paper." Jacobs School News. August 13, 2008.

"Hollywood hair will be captured at last: details in SIGGRAPH 2008 paper." EurekaAlert. Aug. 13, 2008.

"Hollywood Hair is Captured at Last." PhysOrg. Aug. 13, 2008.

"Hair Photobooth: Geometric and Photometric Acquisition of Real Hairstyles." The Composed Gentleman. Aug. 14, 2008.

"Hairstyles for games and movies." Emerging Technology Trends — ZDNet.com. Aug. 16, 2008.

References Available to Contact

Dr. Matthias Zwicker
Professor
University of Bern
Neubrückstrasse 10, 3012 Bern, Switzerland
Phone: +41 31 631 3301
Email: zwicker@iam.unibe.ch

Dr. Serge Belongie
Professor
University of California, San Diego
EBU3B Room 4118
9500 Gilman Drive, La Jolla, CA 92093-0404, USA
Phone: +1 858 822 5163
Email: sjb@cs.ucsd.edu

Dr. Hao Li
Researcher
Industrial Light & Magic
One Letterman Drive
San Francisco, CA 94129, U.S.A.
Phone: +1 917 514 6980
Email: hao@hao-li.com