

## Ming Chuang

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### EDUCATION

#### Ph.D. Student

Sep, 2008 ~ 2012(Expected)

Supervisor: Michael Misha Kazhdan

Computer Science Department

Johns Hopkins University, Baltimore

#### M.S.E. Computer Science

May, 2008

Johns Hopkins University, Baltimore

GPA: 3.89

#### B.S. Computer Science and Information Engineering

June, 2004

National Central University, Taiwan

GPA of the last 60 credits: 4.0

Overall GPA: 3.46 (major: 3.5+)

Ranking: Top 5%

### PUBLICATIONS

#### [Interactive and Anisotropic Geometry Processing Using the Screened Poisson Equation](#)

M. Chuang and M. Kazhdan

SIGGRAPH 2011

#### [Fast Mean-Curvature Flow via Finite-Element Tracking](#)

M. Chuang and M. Kazhdan

To appear in Eurographics *Computer Graphics Forum*.

#### [A Real-Time Screened-Poisson Solver for Interactive Surface Editing](#)

M. Chuang and M. Kazhdan

ACM SIGGRAPH *Symposium on Interactive 3D Graphics and Games* (February 2010), Poster Session

(Received *Honorable Mention*)

#### [Estimating the Laplace-Beltrami Operator by Restricting 3D Functions](#)

M. Chuang, L. Luo, B. Brown, S. Rusinkiewicz, and M. Kazhdan

Eurographics/ACM SIGGRAPH *Symposium on Geometry Processing* (July 2009), pages 1475—1484

(Received *Best Paper - Second Place*)

#### [A Shape Relationship Descriptor for Radiation Therapy Planning](#)

M. Kazhdan, P. Simari, T. McNutt, B. Wu, R. Jaques, M. Chuang, and R. Taylor

*Medical Imaging Computing and Computer Assisted Intervention (MICCAI)* (September 2009)

#### [Patient Geometry-Driven Information Retrieval for IMRT Treatment Plan Quality Control](#)

B. Wu, F. Ricchetti, G. Sanguineti, M. Kazhdan, P. Simari, M. Chuang, R. Taylor, R. Jacques, and T. McNutt

*Medical Physics* (December 2009, Vol. 36, No. 12), pages 5497--5505

#### [A Fuzzy Rule Based Approach to Hand Shape Recognition Systems](#)

M. C. Su, Y. X. Zhao, C. H. Hung, and M. Chuang

*Joint Conference on AI, Fuzzy System, and Grey System, Taiwan* (December 2003)

## PROFESSIONAL EXPERIENCE

**Teaching Assistant** Spring 2008, Spring 2009, and Spring 2010  
**Computer Graphics, Department of Computer Science, Johns Hopkins University**  
**Professor: Michael M. Kazhdan ([misha@cs.jhu.edu](mailto:misha@cs.jhu.edu))**

**Teaching Assistant** Fall 2007, Fall 2008, and Fall 2009  
**Introduction to Algorithms, Department of Computer Science, Johns Hopkins University**  
**Professor: Susan Hohenberger ([susan@cs.jhu.edu](mailto:susan@cs.jhu.edu))**  
**Baruch Awerbuch ([baruch@cs.jhu.edu](mailto:baruch@cs.jhu.edu))**

**Research Assistant** Summer 2009 and Summer 2010 to present  
**Computer Graphics Group, Department of Computer Science, Johns Hopkins University**  
**Professor: Michael M. Kazhdan**

**Research Assistant** Summer 2007  
**Laboratory of Medical Image Computing, Department of Radiology, Johns Hopkins University**  
**Supervisor: Dzong L. Pham ([pham@jhu.edu](mailto:pham@jhu.edu))**

- ❖ Medical image analysis with geometry- and image- processing algorithms
- ❖ Software Development of plug-ins for NIH's MIPAV (Medical Image Processing, Analysis, and Visualization)

**Research Assistant** Summer 2007  
**Inherited Disease Research Branch, National Human Genome Research Institute, NIH**  
**Supervisor: Priya Duggal ([pduggal@jhsph.edu](mailto:pduggal@jhsph.edu))**

- ❖ Single Nucleotide Polymorphism (SNP) Data Analysis
- ❖ Scientific/statistical data visualization

**Information Technology Instructor** Dec 2005 – Jan 2007  
**Simulation Training Center, Information and Electronic Warfare Command, Taiwanese Army**

- ❖ Development and maintenance of web-based management systems
- ❖ Introductory IT lectures (basic programming, web design, database, etc.)

## AWARDS

**Dean's List honoree** 2003-2004  
Awarded to the top three students in a class for academic excellence  
Ranked 1<sup>st</sup> out of 53 students

**The winner of Best Start-up Candidate Award** 2003  
The Fifth TIC100 Technology Innovation Competition ([www.tic100.org.tw](http://www.tic100.org.tw))  
Sponsor: Advantech Foundation, and Industrial Technology Research Institute of Taiwan  
Project Name: Portable Sign-Language Recognition System

## PAST COURSE/MINI PROJECTS

**Interactive Surface Parameterization** Fall 2010  
**Course project of *Mesh Processing*, Dep. of Computer Science, Johns Hopkins University**

- ❖ Leveraging the positive (semi-)definiteness in Discrete Harmonic Map for system pre-factorization.
- ❖ Leveraging the violation of the convex-boundary condition.
- ❖ Resulting in a real-time system that allows users to *tweak* parameterization interactively by pinning a small subset of vertices, benefiting applications such as texture-geometry alignment.

### **Mesh Segmentation via Discrete Harmonic Map**

Fall 2009

Course project of *Discrete Differential Geometry*, Dep. of Computer Science, Johns Hopkins University

- ❖ Motivated by the observation that conformal/harmonic parameterization often exhibits an informative grouping of vertices around joints in articulated models.
- ❖ Performing an area-weighted GMM-EM clustering in the parameter domain.
- ❖ Demonstrating a feasible strategy for mesh segmentation. In addition, this *density map* idea suggests a framework that can be of benefit to other applications like shape matching and symmetry detection.

### **Object Encryption in 2D images**

Fall 2007

Course project of *Poisson Equation in Image and Shape Processing*, Dep. of Computer Science, Johns Hopkins University

- ❖ Concealing objects in an image by manipulating gradients
- ❖ Recovering the original image with a key, possibly an unrelated image pattern or just a simple string.

### **Lattice-Based Protein Visualization**

Summer 2007

Institute for Computational Medicine, Dep. of Biomedical Engineering, Johns Hopkins University

- ❖ Applying lattice models to simplify the visualization task of massive, dynamic proteins.
- ❖ Computing and visualizing best-fit structures in real-time.

### **Resume Searching & Parsing Robot**

Spring 2007

Course project of *Information Retrieval and Web Agent*, Dep. of Computer Science, Johns Hopkins University

- ❖ A selective web-crawler that leverages semantic vector models and empirical rules.
- ❖ Post processing with Bayesian clustering.

### **Stereo-Mapping and Obstacle Avoidance**

Fall 2006

Course project of *Computer Vision*, Dep. of Computer Science, Johns Hopkins University

- ❖ Stereo-based mapping for robot vision.
- ❖ Leveraging the SIFT descriptor and disparity map.

### **Sign Language Recognition System**

May 2003 – July 2004

Computational Intelligence and Human-Computer Interaction Lab, Dep. of CSIE, National Central University

- ❖ Deploying a camera and a pair of fiber gloves to track and recognize hand shapes and trajectories.
- ❖ Training datasets in advance with neuro-fuzzy networks.