

Alexander Tsui

✉ alextsui05@gmail.com

<http://atsui.me>

OBJECTIVE

A software engineering position designing algorithms and building systems to process, visualize, and interact with biomedical, geometric, and/or scientific data.

EDUCATION

- 08/10 - Present **Ph.D. in Computer Science**, *University of California, Davis*, Davis, California.
Expected graduation date: December 2015. GPA: 3.87/4.0
- 08/05 - 05/10 **B.S. in Computer Science, Applied Mathematics**, *San Jose State University*, San Jose, California.
Minor in Chinese. Overall GPA: 3.76/4.0

EXPERIENCE

- Fall 2011 - Present **Research Assistant**, *UC Davis*, Department of Computer Science.
Developing cross-platform C++ GUI (Windows, OS X, Linux) to support land-marking 3-d mesh data for surface mapping research project. Reconstruct and postprocess meshes in batch from data acquired from brain MR images and laser range scan images. Integrate Fortran numerical solver to perform nonlinear optimization to execute mathematical technique for smoothing data.
- Summer 2012, Summer 2014 **Intern**, *Google Summer of Code*, Computational Geometry Algorithms Library.
Rewrote, improved, and extended old C++/Qt3 visualization of arrangements of 2-d curves to use updated Qt4 library for the CGAL open source project while collaborating remotely with developers from Europe and Israel. Continuing support as part of user and developer community.
- Winter 2010, Spring 2012 **Teaching Assistant**, *UC Davis*, Department of Computer Science.
Gave discussion sessions, designed and graded assignments, made scripts to semi-automate grading of programming assignments in Artificial Intelligence (2012) and Intro to C Programming (2010).
- Summer 2011 **Research Assistant**, *UC Davis*, Department of Neurology.
Applied probabilistic brain tissue segmentation method to a large corpus of brain images. Tuned parameters to deal with wide range of image artifacts. Wrote scripts to automate image registration and processing on cluster environment.
- Spring 2006 - Spring 2010 **Webmaster**, *San Jose State University*, Department of Mathematics.
Maintained three PHP-based websites for student club/school functions.

SKILLS

- Computer Languages** C/C++, Java, Bash, Python, Ruby, C#
- Productivity** Vim, GDB, Git, Subversion, CMake, Visual Studio 2010, Eclipse
- Libraries** Qt4, ITK/VTK, Boost, CGAL
- Web & DB** PHP, MySQL
- Spoken Languages** English (Native), Japanese (JLPT N2), Chinese (Basic)

AFFILIATIONS

Spring 2012 - Fall 2015

Graduate Student Association.

Representative for Computer Science department in group concerned about graduate student affairs. Organize regular social and company-building activities for the department.

ACADEMIC

- Poster** C. Rojas, **A. Tsui**, S. He, L. Simons, S. Li, and N. Amenta, "Edge Length Interpolation," *Solid Phys. Model.*, 2014.
- Abstract** **A. Tsui**, "Constraint-based surface mapping via hyperbolic orbifold metrics," in *SOCG 2014 Young Researcher's Forum*, 2014, pp. 8-9.
- Paper** **A. Tsui**, D. Fenton, P. Vuong, J. Hass, P. Koehl, N. Amenta, D. Coeurjolly, C. DeCarli, and O. Carmichael, "Globally optimal cortical surface matching with exact landmark correspondence.," *Inf. Process. Med. imaging*, vol. 23, pp. 487–98, Jan. 2013.
- Paper** C. G. Schwarz, **A. Tsui**, E. Fletcher, B. Singh, C. DeCarli, and O. Carmichael, "Impact of Markov Random Field optimizer on MRI-based tissue segmentation in the aging brain.," *Conf. Proc. IEEE Eng. Med. Biol. Soc.*, vol. 2011, pp. 7812–5, Jan. 2011.

REFERENCES

Prof. Nina Amenta

Major Advisor
Dept. of Computer Science
UC Davis
Davis, CA 95616

Prof. Owen Carmichael

Advisor
Brain and Metabolism Imaging in Chronic Disease
Pennington Biomedical Research Center, LSU
Baton Rouge, LA 70808