

Audrey L. Cheong

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OBJECTIVE

Seeking a full-time position as an Engineer or Research Scientist.

EDUCATION

Doctorate in Electrical Engineering

Concentration: Signal and Image Processing, University of Houston, GPA: 3.94

May 2018

Bachelor of Science in Biomedical Engineering

Concentration: Neuroengineering, University of Houston, GPA: 3.95

December 2011

Relevant Courses: Data Mining, Machine Learning, Optimization Theory, Digital Signal Processing, Digital Image Processing, Biosensors, Bioinstrumentation, Quantitative Physiology, Human Physiology, Neuroscience, Microbiology

Programming/Scripting Languages: MATLAB, C++, Java, Python

EMPLOYMENT

Computational Biology and Medicine Laboratory, College of Technology, Houston, TX

Fall 2013-May 2018

Research Assistant

- Collaborated on a cross-functional team project involving M.D. Anderson Cancer Center, the University of Texas at Austin, and the University of Houston to investigate breast reconstruction outcomes and develop new techniques to evaluate and predict these outcomes.
- Contributed code to a Java-based program tailored for visualizing and extracting measurements from 3D surface images of the female torso.
- Analyzed longitudinal morphological changes on 3D image data of female breast cancer patients during reconstruction.
- Evaluated image quality to provide feedback on imaging protocols.

Naval Surface Warfare Center, Panama City, FL

Summer 2014

Summer Intern

- Learned the process of converting raw data captured by an autonomous underwater vehicle to form an echo image.
- Wrote basic algorithms in MATLAB to process sonar data.
- Modified a user interface framework for processing sonar images.

Bio-Image Analytics Laboratory, Cullen College of Engineering, Houston, TX

Spring 2011-Fall 2013

Research Assistant

- Operated in a team environment to process and analyze 3D images of the brain containing thousands of cells.
- Contributed code to a custom-designed program written in C++ for visualizing and extracting meaningful quantitative data from digital reconstructions of neuronal morphology.
- Implemented classification methods for cell identification.
- Attended seminars about open source computing and tools for image processing, including ITK and VTK.

Lab of Molecular Probes and Diagnostics, Methodist Hospital Research Institute, Houston, TX, Summer 2010

Research Assistant

- Conducted numerous experiments to synthesize MRI and optically active nanocapsules for cancer diagnostics.
- Learned how to conduct research and used a spectrophotometer and dynamic light scattering machine to measure light intensity and the nanocapsule size, respectively.
- Presented results to medical students and doctors.

RESEARCH EXPERIENCE

Computer Vision Laboratory, National Tsing Hua University, Hsinchu, Taiwan

Summer 2015

Graduate Researcher

- Developed code in MATLAB to perform 3D modeling of objects using Microsoft Kinect 2.0.
- Adapted to a new environment and gained invaluable cultural experiences.
- Awarded through the National Science Foundation and the Ministry of Science and Technology (Taiwan).

College of Natural Sciences & Mathematics, University of Houston, Houston, TX

Summer 2011

Undergraduate Researcher

- Wrote a well thought-out proposal to conduct an independent project designed to visually manipulate an image using hand motion control captured by Microsoft Kinect 1.
- Learned how to utilize software libraries, including OpenCV and OpenNI, for writing a software program in C++.
- Led a team to successful completion of the project goals.

Cardiovascular Surgical Research, Texas Heart Institute, Houston, TX

Spring 2011

Student/Volunteer Worker

- Designed a successful prototype that met our goals of developing a device to create an arteriovenous fistula.
- Learned how to work in a team and resolve conflicts.
- Presented results at the Capstone Design Conference and received best poster award (University of Houston).

Center for Neuromotor and Biomechanics Research, University of Houston, Houston, TX Spring 2011
Student/Volunteer Worker

- Provided demo data for lab studies in Parkinson's disease and stroke.
- Learned how to use force plates, the Vicon, Visual 3D, and gait analysis tool.
- Volunteered weekly every Friday with two graduate students.

Micro/Nanofabrication Laboratory, University of Houston, Houston, TX Spring 2010-Fall 2010
Undergraduate Researcher

- Developed surface chemistry on silicon wafers for applications in detecting and quantifying E. coli.
- Applied problem solving to design and implement experiments.
- Learned how to use devices such as the ellipsometer and the spectrophotometer.

PUBLICATIONS

1. Cheong A, Liu J, Reece GP, Bordes MC, Hanson S, Markey MK, Fingeret MC, Merchant FA. 3D Symmetry of Natural Breasts in Pre-Operative Breast Cancer Patients. In preparation.
2. Li D, Cheong A, Reece GP, Crosby MA, Fingeret MC, Merchant FA. Computation of Breast Ptosis from 3D Surface Scans of the Female Torso. Computers in Biology and Medicine, September 2016.
3. Zhao L, Cheong A, Reece GP, Fingeret MC, Shah SK, Merchant FA. Inferior Breast-Chest Contour Detection in 3D Images of the Female Torso. Journal of Translational Engineering in Health and Medicine, September 2016.

PRESENTATIONS AND POSTERS

1. K. Nicklaus, A. Cheong, J. Liu, G. Reece, M. Bordes, S. Hanson, M. Markey, M. Fingeret, F. Merchant, "3D symmetry of pre-operative breasts in cancer patients." San Antonio Breast Cancer Symposium, San Antonio, TX, Abstract in Submission, December 2018.
2. A. Cheong, F. Yen, MC. Bordes, G. Reece, F. Merchant, "Computational Model for Breast Shape Analysis from 3D Surface Images for Plastic and Reconstructive Surgery." In preparation.
3. A. Cheong, F. Yen, G. Reece, M. Bordes, S. Hanson, F. Merchant, "Computerized prediction of postoperative breast shape in reconstructive surgery." In Preparation.
4. A. Cheong, S. Hanson, G. Reece, M. Markey, F. Merchant, "Potential of 3D Surface Imaging for Quantitative Analysis of Fat Grafting." Conference paper in preparation. 3D Body Scanning Technologies Conference, Lugano, Switzerland, October 2018.
5. A. Cheong, F. Merchant, "Three-dimensional evaluation of breast shape and symmetry changes in breast reconstruction." Poster Presentation, Society of Women Engineers National Conference, Philadelphia, PA, October 2016.
6. A. Cheong, F. Merchant, "3D quantitative analysis of the female breast morphology during breast reconstruction." Poster Presentation, Graduate Research Conference, Houston, TX, April 2015.
7. A. Cheong, G. Reece, M. Fingeret, F. Merchant, "Visualization and quantification of female breast morphology during breast reconstruction." Conference paper, 3D Body Scanning Technologies Conference, Lugano, Switzerland, October 2014.
8. A. Cheong, F. Merchant, "Predictive modeling of the female breast morphology during breast reconstruction." Poster Presentation, Graduate Research Conference, Houston, TX, April 2014.
9. A. Cheong, B. Roysam, "Quantitative cell arbor morphometry." Poster Presentation, Graduate Research Conference, Houston, TX, April 2013.
10. Roysam, R. Padmanabhan, Y. Xu, Y. Lv, J. Luisi, M. Savelonas, B. Busse, V. Somasundar, N. Rey-Villamizar, P. Kulkarni, H. Cheung, A. Cheong, L. Carin, C.-L. Tsai, K. Trett, C. Harris, P. Chong, D. Kipke, C. Stoetzner, R. Vetter, W. Shain. "FARSIGHT: A computational toolkit for quantitative three-dimensional multiparameter profiling of gliovascular brain tissue surrounding implanted neuroprosthetic devices." Poster Presentation, Society for Neuroscience, New Orleans, LA, October 2012.
11. A. Cheong, B. Roysam, "Feature selection for quantification of glial morphology in response to neural prosthetic implantation." Poster Presentation, Graduate Research Conference, Houston, TX, April 2012.
12. A. Cheong, B. Roysam. "The FARSIGHT trace editor: visualization and analysis of neurites." Undergraduate Research Day, Poster Presentation, Houston, TX, October 2011.

PROFESSIONAL DEVELOPMENT

Member, Society of Women Engineers (SWE)	Fall 2010-present
Treasurer, Biomedical Engineering Society (BMES)	Fall 2009-Spring 2011
Treasurer, Society of Women Engineers (SWE)	Fall 2010-Spring 2011

HONORS and AWARDS

Second Place Graduate Poster Award at the SWE National Conference (Philadelphia, PA)	2016
Grace Hopper Celebration of Women in Computing Scholarship	2016
East Asia and Pacific Summer Institutes for U.S. Graduate Students Award	2015
National Science Foundation Graduate Research Fellowship	2012 – 2016
Society of Women Engineers Scholarships	2010 – 2015

Other details: Ability to relocate and travel up to 100% for business.