

Elton Cheng

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Education

Northwestern University	<i>Master of Science in Robotics</i>	Sept 2016 to Present	GPA: 3.93
University of California, San Diego	<i>Bachelor of Science in Bioengineering</i>	Sept 2011 to June 2015	GPA: 3.18

Skills

- Proficient in Python, MATLAB, Java, C/C++, Lua, Mathematica, SQL, Git, GitHub, and Linux
- Experience working with ROS, SolidWorks, AutoCAD, Eclipse, Android Studio, LabView, Gazebo, and V-REP
- Knowledgeable in Rigid Body Kinematics and Dynamics, Lagrangian Mechanics, Analysis/Design of Linear Control Systems, Mechatronics, Microcontrollers, Computer Vision, and Computational Geometry

Projects

Portfolio: <https://echeng22.github.io>

- *Simulation Tool for Decentralized Multi-Robot Cooperative Manipulation* (Current Project) – Simulation tool in V-REP used during the development of high-level control software for a system that allows 3 or more mobile manipulators to cooperatively position a large-scale manufacturing component.
- *Baxter Shell Game* – Software that enables Rethink Robotics' Baxter to find a cube and track its location while it is hidden and shuffled under three cups. Course project used to apply lessons, which include ROS, inverse kinematics solvers, and motion planning tools, to a physical robot in the real world.
- *AcroDex* – Android application that can store, track, and update the numerous acronyms that users encounter in their daily lives. Goal of personal project was to learn and become familiar with Android Studio and Android app development.
- *Bioengineering Senior Design Project* – Rehabilitation tool for recovering ankle mobility after ankle sprain. Used ImageJ to video capture ankle movement data and created MATLAB scripts to process data and determine the effects of the tool. Data showed an improvement in exercise motion compared to other available methods.

Work Experience

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| Software Test Technician I | <i>Panasonic Avionics Corporation</i> | Feb 2016 to Aug 2016 |
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- Tested In-Flight Entertainment Systems using System Acceptance Test Procedures. Ad-hoc methods were also used to find edge cases not found in test procedures. Used Linux to navigate across various parts of the system during testing.
 - Documented failures/unexpected results that occurred during test procedures and described in detail the setup and steps to cause failure.

Lab Assistant *UCSD: Dept. of Orthopaedic Surgery* Jan 2014 to June 2015

- Developed MATLAB software to communicate with lab motor and sensor hardware and automate collection and analysis of 1-D laser diffraction signals from muscle tissue. Optimized methodology to freeze and section muscle samples for 1-D laser diffraction analysis.
- Developed methodology and MATLAB software to capture and analyze 2-D laser diffraction signals from muscle tissue using a webcam.

MATLAB Programmer *Inst. of Geophysics/Planetary Physics* Feb 2013 to Dec 2014

- Created MATLAB code to sort data from a text file, convert into HTML format, and present the data in summary plots. Code also recorded and updated data which met search criterion into text file.
- Created MATLAB GUI to view and classify plots in a user-specified folder. Classified plots are saved and status can be updated/changed in a later session.

Journal Publications

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- O'Connor S.M., **Cheng E.J.**, Ward S.R., Lieber R.L. "Sarcomere length distribution quantification in whole muscle frozen sections." *Journal of Experimental Biology*. <http://dx.doi.org/10.1242/jeb.132084>