Daniel A. Hagen

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EDUCATION

University of Southern California, Viterbi School of Engineering

Doctor of Philosophy, Biomedical Engineering (GPA: 3.955, Provost Fellow)   May 2016 - Aug 2020
Master of Science, Biomedical Engineering (GPA: 3.95)   Jan 2015 - May 2016

University of Arizona

Bachelor of Science, Mathematics (GPA: 3.60)   Aug 2007 - May 2010

SKILLS

Languages: Python, C/C++, MATLAB/Simulink, JavaScript, LaTeX, HTML/CSS

Tools: Tensorflow, Github, Travis CI, Object-Oriented Programming, REST APIs, Data Visualization, Unit Testing, Biomimetic Robotics, Machine Learning, Simulations of Dynamical Systems

Coursework: Linear Systems Theory, Nonlinear and Adaptive Control, Neuromuscular Systems, Lagrangian Mechanics, Inverse Kinematics, Path Planning, Physiological Control Systems

Soft Skills: Flexible, Detail-Oriented, Passionate, Independent, Collaborative, Problem-Solving

EXPERIENCE

University of Southern California   May 2016 – Aug 2020
Graduate Research Assistant   Los Angeles, CA

- Simulate and control redundant tendon-driven robotic manipulators in order to increase our understanding of biological motor control by designing novel simulation platforms in both Python and MATLAB
- Wrote innovative, robust software now used by all members of the Lab designed to support team progress, improve inter-team information flow, and publish results

University of Southern California   Aug 2017 – Jan 2020
Teaching Assistant   Los Angeles, CA

- Facilitated weekly experiments which utilize concepts from biophysics to record physiological phenomena and to stimulate electrically-excitable tissue (e.g., EMG, EEG)
- Encouraged learning and proficiency in course concepts and lab techniques by leading weekly discussion groups of 15 or more students

iCue Catering   Aug 2011 – Jan 2015
Owner/Head Chef   Los Angeles, CA

- Established a new catering company, grown from a passion project into a stable business
- Curated private events and developed new menus all while managing event staff and coordinating closely with clientele in order to meet their needs

PROJECTS

insideOut (IEEE/RSJ IROS 2020 Peer-Reviewed Abstract)
Developed a machine learning algorithm that estimates posture in tendon-driven robots from non-collocated sensors to produce estimates <0.01 degree in accuracy as an alternative to traditional on-location joint encoders

Controlling a Compliant Tendon-Driven Robot with Redundant Actuators
Accomplished stable reference trajectory tracking for redundantly-actuated, compliant tendon-driven systems using a variety of tools like integrator backstepping, feedback linearization, and model predictive control

DanPy Python Package (github/danhagen/danpy)
Created a fully-documented package with 95% test coverage that helps users visualize their code/research with tools like a command line statusbar and a figure-saving function that creates Github-flavored markdown progress reports