Daniel A. Hagen, PhD

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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 - Jun 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

EXPERIENCE

Palladyne AI — Apr 2024 - Present

Senior Lead Engineer, Controls — Salt Lake City, UT (Remote)

- Develop control and motion planning algorithms for a variety of serial manipulator robots to solve real world problems like autonomous "Pick & Place" and teleoperation
- Guide biweekly sprint planning and backlog grooming meetings to help identify friction points, avoid project-creep, and provide timely support when needed

Sarcos Technology and Robotics Corp. — Jun 2022 - Apr 2024

Senior Robotics Controls Engineer — Salt Lake City, UT

- Integrated various walking models and path planning algorithms with a whole-body, centroidal momentum controller in order to generate bipedal locomotion of a humanoid robot in a simulated environment
- Lead academic collaborations with two prominent Universities; coordinating meetings and milestones, guiding technical development, and co-authoring peer-reviewed publications
- Maintained code repositories and libraries utilizing proper Gitflow and documentation to allow for algorithms to be more readily shared and adapted across teams/projects

Sarcos Technology and Robotics Corp. — Nov 2020 - Jun 2022

Controls Engineer I — Salt Lake City, UT

- Developed a whole-body, robot coordination controller for a hybrid exoskeleton/humanoid robot capable of accomplishing a variety of tasks like balancing and end-effector position/orientation tracking on hardware
- Designed and conducted multiple experiments for solving hardware issues and validating sensor measurements
- Standardized internal documentation through the use of version-controlled LaTeX documentation repositories aimed at increasing both project progress observability and cross-team collaboration

University of Southern California — May 2016 – Jun 2020

Graduate Research/Teaching Assistant — Los Angeles, CA

- Pioneered a novel 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 (IEEE/RSJ IROS 2020 Peer-Reviewed Abstract)

SKILLS

Languages: C/C++, Python, MATLAB/Simulink, JavaScript, LaTeX, HTML (URDF, XML), CSS

Tools: ROS2, Rigid Body Dynamics, Spatial Kinematics, Optimal Control, Bipedal Locomotion, Centroidal Dynamics, Serial Manipulators, Physics Modelling and Simulations (MuJoCo, Simscape), Signal Processing/Filtering, Object-Oriented Programming, Machine Learning, Git, Travis CI

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

Soft Skills: Persistent, Detail-Oriented, Curious, Self-Driven, Collaborative, Problem-Solving, Flexible