Albert Hao Li

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Education

Stanford University 09/19 - 06/21 (expected)
M.S. Mechanical Engineering
GPA: 4.150 / 4.000

University of California, Berkeley 08/15 - 05/19
B.S. Mechanical Engineering
Minor in Electrical Engineering and Computer Science
GPA: 3.928 / 4.000 (High Honors)

Research Experience

Assistive Robotics and Manipulation Lab 10/19 - Present
PI: Monroe Kennedy III Stanford University

Currently researching safe dynamical learning, prediction, and control for robots and human-robot interactions.

Hybrid Robotics Lab 05/19 - 10/19
PI: Koushil Sreenath UC Berkeley

Developed real-time control algorithms for simultaneous ball juggling and balancing on the bipedal robot Cassie.

Berkeley Emergent Space Tensegrities Lab 09/18 - 10/19
PI: Alice Agogino UC Berkeley

Derived new models and shape control algorithms for compound tensegrity robots, applied results to design of spinally-actuated tensegrity locomotors.

Laboratory for Automation Science and Engineering 02/17 - 12/17
PI: Ken Goldberg UC Berkeley

Researched weight, cost, and strength optimization for the mechanical design of robotic manipulators using rapid prototyping methods.

Professional Experience

Apple Inc. 01/18 - 08/18
Apple Watch Product Design Intern

Designed parts for the Apple Watch Series 4 and 5, researched tactile sensing technologies, and conducted experiments on dynamic human interaction and product usage behaviors.

Publications

For article access and supplemental materials, visit alberthli.github.io.

Journal Publications

J1. Andrew Preston Sabelhaus, **Albert Hao Li**, Kimberley Sover, Jacob Madden, Andrew Barkan, Adrian Agogino, and Alice Agogino, "Inverse Statics Optimization for Compound Tensegrity Robots," *IEEE Robotics and Automation Letters*, vol. 5, no. 3, pp. 3982-3989, 2020.

Conference Publications

C2. Katherine Lin Poggensee*, **Albert Hao Li***, Daniel Sotsaikich*, Bike Zhang, Prasanth Kotaru, Mark Mueller, and Koushil Sreenath, "Ball Juggling on the Bipedal Robot Cassie," *2020 European Control Conference (ECC)*, Saint Petersburg, Russia, 2020, pp. 875-880. ***Equal Contribution**.

C1. Jeffrey Mahler, Matthew Matl, Xinyu Liu, **Albert Li**, David Gealy, Ken Goldberg, "Dex-Net 3.0: Computing Robust Vacuum Suction Grasp Targets in Point Clouds Using a New Analytic Model and Deep Learning," *2018 IEEE International Conference on Robotics and Automation (ICRA)*, Brisbane, QLD, 2018, pp. 5620-5627.

Publications in Review

R1. **Albert Hao Li***, Philipp Wu*, Monroe Kennedy III, "Replay Overshooting: Learning Stochastic Latent Dynamics with the Extended Kalman Filter," *2021 IEEE International Conference on Robotics and Automation (ICRA)*, Xi'an, China, 2021. ***Equal Contribution.**

Publications in Preparation

P2. **Albert Hao Li**, Philipp Wu, Monroe Kennedy III, "One-Shot Learning Physics Models with the Meta-Extended Kalman Filter."

P1. **Albert Hao Li**, Monroe Kennedy III, "Safe Multi-Agent Collaborative Transport Without Communication."

Poster Presentations

Ball Juggling on the Bipedal Robot Cassie 2019
Bay Area Robotics Symposium (*jointly with Bike Zhang*)

Reviewing Activities

IEEE Robotics and Automation Letters (RA-L) 2020

Teaching Experience

Dynamic Systems, Vibrations, and Control Fall 2020
Teaching Assistant Stanford University

Service / Outreach

Technical Policy Debate Mentor 06/15 - 06/17
Bay Area Urban Debate League, Bellarmine College Preparatory, Katy Taylor High School, Oakland Technical High School

Student Groups

Space Technologies at Cal (STAC) 06/17 - 05/19
Lunar Mining Team UC Berkeley

Studied lunar resource extraction sites in collaboration with NASA Ames, assisted with chassis/wheel design for lunar rover, researched extraction strategies for gaseous and/or mineral resources.

RoboBears 06/16 - 12/17
Internal Vice President, Mechanical Design Lead UC Berkeley

Co-taught student-led course on combat robot design, led weapons design for 60 pound combat robot, led pre-competition machining/manufacturing process and electronics testing.

Technical Skills

Languages: Python, MATLAB, Julia, Java, C++, LaTeX

Software: Robot Operating System (ROS), PyTorch, TensorFlow, Simulink

Mechanical Engineering: SolidWorks, Siemens NX, ASTM mechanical testing, statistical tolerance analysis, rapid prototyping

Relevant Coursework

Mechanical Engineering: Microprocessor-Based Mechanical Design, Lagrangian and Hamiltonian Dynamics, Mechanical Behavior of Materials, Heat Transfer, Mechatronics

Robotics and Control: Dynamic Systems and Feedback, Model Predictive Control, Loop Shaping, Linear Systems (SISO and MIMO), Nonlinear Systems, Robot Autonomy, Multi-Robot Control, State Estimation and Filtering, Optimal and Learning-Based Control, Robust and Adaptive Control

Computer Science: Data Structures, Discrete Math and Probability, Machine Learning, Decisionmaking Under Uncertainty, Convex Optimization, Meta- and Multi-Task Learning, Reinforcement Learning