

Sina Aghli

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Research interests Nonlinear Control Optimal Control, Robotics, State estimation, SLAM

Education **University of Colorado Boulder** Boulder, CO
PhD in Computer Science 2014 – 2018
Mentors: Professors Christoffer Heckman, John Hauser, Gabe Sibley.

George Washington University Boulder, CO
PhD in Aerospace Eng (Transferred to CU Boulder) 2012 – 2014
Mentors: Professor Gabe Sibley.

University of Tabriz Tabriz, Iran
MA in Mechatronics 2010 – 2012

Azad University Khoy, Iran
BA in Computer Hardware Engineering 2004 – 2008

Honors Gold medal in 11th Iran Skills National Contest 2011
Exceptionally talented student scholarship (Tabriz University, Iran) 2010
Silver medal in Khwarizmi National Science Festival (Iran) 2010
Second place at IRANOPEN international robotcup contest. (Iran) 2018

Publications **Online system identification and calibration of dynamic models for autonomous ground vehicles**
S Aghli, C Heckman.
IEEE International Conference On Robotics and Automation, 2018.

Path-Following through Control Funnel Functions
H Ravanbakhsh, S Aghli, C Heckman, S Sankaranarayanan.
IEEE International Conference on Intelligent Robots and Systems, 2018.

Game-Theoretic Cooperative Lane Changing Using Data-Driven Models
G Ding, S Aghli, C Heckman, L Chen.
IEEE/RSJ International Conference on Intelligent Robots and Systems, 2018.

Terrain Aware Model Predictive Controller for Autonomous Ground Vehicles
S Aghli, C Heckman.

BGSR workshop at Robotics: Science and Systems Conference 2017, 2017.

Design and fabrication of a worm robot prototype

M Noorani, A Ghanbari, S Aghli.

RSI International Conference on Robotics and Mechatronics (ICROM), 2015.

Research experience

Research Consultant at PickNik Robotics R&D

Jan 2021 – Present

Help design non-linear controllers for variety of robotic platforms ([PickNik Robotics](#)).

Research Consultant at Scythe Robotics Inc

Aug 2019 – Aug 2020

Help design non-linear controller for a grass mowing robot ([Scythe Robotics](#)).

Instructor and Researcher at University of Colorado Boulder

Jan 2019 – Present

Research on technologies used in self-driving vehicles

Graduate Research Assistant at University of Colorado Boulder

2014 – 2018

Design of a adaptive MPC controller for self-driving vehicles

Design of an entropy based parameter calibration pipeline for robotic platforms

Design of an agile four wheeled self-driving robot with stereo visual localization

Design of a wheeled robot with hydraulic actuated suspension to traverse rough terrain

Graduate Research Assistant at George Washington University

2012 – 2014

Design of a self-driving ECU board for Lexus ISF120

Design of an electronics unit and communication stack for a Hybrid Mobile Robot

Graduate Research Assistant at Tabriz University

2010 – 2012

Design of a cable driven parallel robot manipulator

Resolution multiplier system for optical encoders

Design and implementation of an inchworm crawling robot

Grant Collaborations

Co-PI of NSF-CPS grant, Learning and Verifying Conformant Data-Driven Models for Cyber-Physical Systems (\$1.2M) 2020

PI: Sriram Sankaranarayanan

CoPIs: Sina Aghli, Christoffer Heckman, Georgios Fainekos and Heni-Ben Amor

Research Assistant for DARPA Tactical Technology Office Subterranean Challenge: MARBLE (\$4.5M) 2018

PI: Sean Humbert

Research Assistant for NSF CPS: Synergy: Verified Control of Cooperative Autonomous Vehicles (\$777K) 2018

PI: Christoffer Heckman

Research Assistant for DARPA Defense Sciences Office: Ninja Car (\$1.04M) 2018

PI: Christoffer Heckman

Teaching experience

Instructor at Computer Science Department (University of Colorado Boulder) Fall 2018 - Present

CSPB2270: Data Structures and Algorithms

CSPB2400: Computer Systems

CSPB3022: Introduction to Data-Science Algorithms

Instructor at Computer Science Department (University of Colorado Boulder) 2016

ECEN2703: Discrete Mathematics for Computer Engineers

Teaching Assistant at Computer Science Department (University of Colorado Boulder) 2015

ECEN2703: Discrete Mathematics for Computer Engineers

CSCI1300: Starting Computing

Other interests

Motorcycle Racing, Skiing, Hiking.