

# Sina Aghli

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**Email:** sina.aghli@colorado.edu

**Web:** <https://sinaaghli.com>

**GitHub:** //sinaaghli

**LinkedIn:** //sina-aghli

**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

Notable Projects

checkout <https://sinaaghli.com/projects>

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.