

# Oswin So

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🌐 github.com/oswinso

## EDUCATION

Georgia Institute of Technology    Fall 2018 - Fall 2021    B.S. in Computer Science    GPA: 4.0

## EXPERIENCE

**Autonomous Control and Decision Systems Laboratory**    Fall 2019 - Present  
*Undergraduate Research Assistant*

- Researching risk-sensitive and maximum entropy control under Prof. Evangelos Theodorou.

**Aurora Innovation**    Summer 2021  
*Motion Planning Intern*    C++, PyTorch, Python

- Proposed for cost function learning with on-policy negative examples via the control-as-inference framework for autonomous driving.
- Developed and tested prototype on ACC, resulting in more human-like behavior.

**Amazon Robotics (CANVAS Technology)**    Summer 2020  
*Software Development Engineer Intern*    C++, Ceres Solver, Python

- Researched SOTA in LiDAR odometry and proposed graph-based SLAM with LiDAR odometry.
- Developed ICP-based LiDAR scan matching library to provide odometry for improving docking.

**Greenzie**    Summer 2019  
*Robotics Software Engineer Intern*    ROS, C++, gRPC, Protobuf, Python

- Developed gRPC based communications framework between the robotic lawnmower and client.
- Setup static analysis, style and testing tools with CI, improving code quality and catching bugs.

**Intelligent Ground Vehicle Competition**     Fall 2018 - Present  
*Former Software Lead*    ROS, C++, OpenMP, 3D LiDAR

- Led team of 6 robotics software engineers to develop a 20k+ LOC software stack on ROS.
- Revamped mapping using an occupancy grid fusing 3d lidar and image segmentation data.
- Implemented multi-threaded Rao-Blackwellised particle filter SLAM with OpenMP.

## PUBLICATIONS


**Oswin So**, Ziyi Wang, Evangelos A. Theodorou.

"Maximum Entropy Differential Dynamic Programming". Under Review for ICRA 2022. 

Marcus Pereira\*, **Oswin So**\*, Augustinos D. Saravanos\*, Evangelos A. Theodorou.

"Decentralized Safe Multi-agent Stochastic Optimal Control using Deep FBSDEs and ADMM". To be submitted.

**Oswin So**\*, Ziyi Wang\*, Jason Gibson, Bogdan Vlahov, Manan S. Gandhi, Evangelos A. Theodorou.

"Variational Inference MPC using Tsallis Divergence". RSS 2021. 

Ziyi Wang, **Oswin So**, Keuntaek Lee, Evangelos A. Theodorou.

"Adaptive Risk Sensitive Model Predictive Control with Stochastic Search". L4DC 2021. 

Ethan N. Evans, **Oswin So**, Andrew P. Kendall, Guan-Horng Liu, Evangelos A. Theodorou

"Differential Dynamic Programming for Distributed and Boundary Control of Fields". Under Review. 