# Tarun Punnoose

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## EDUCATION

### STANFORD UNIVERSITY
M.S. Electrical Engineering
Expected Jun 2021 | Stanford, CA

### STANFORD UNIVERSITY
B.S. Electrical Engineering
Jun 2020 | Stanford, CA
Cum. GPA: 3.84/4.0

Activities
- Stanford Robotics Club
- Stanford Solar Car

## COURSEWORK
- EE 364A+B - Convex Optimization
- CS 229 - Machine Learning
- ENGR 205 - Control Design Techniques
- AA 279A - Space Mechanics
- AA 203 - Optimal Control
- ME 334 - Advanced Dynamics, Controls and System Identification
- ME 210 - Intro to Mechatronics

## SKILLS

### PROGRAMMING
- Julia
- Python
- C/++
- Matlab

### GENERAL
- Digital/Analog Electronics
- CNC Machining
- Composites Manufacturing
- Student Pilot

### CAD/CAM
- CATIA 3D Experience
- SolidWorks
- Fusion 360

## EXPERIENCE

### ROBOTIC EXPLORATION LAB | Researcher
Jun 2019 – Present | Stanford, CA
- Researching trajectory optimization techniques for quadruped robots
- Designing an MPC based walking controllers for online implementation
- Implementing Kalman Filter based state estimation techniques
- Testing state estimation and control in a MuJoCo simulation

### JOBY AVIATION | Airframe Team Intern
Jun 2018 – Sept 2018 | Santa Cruz, CA
- Process development and tooling for composite stiffeners
- Designed composite tooling and jigs
- Helped refine the control surface actuators
- Debugged issues with a 5 axis waterjet
- Designed and manufactured a custom oven

### STANFORD SOLAR CAR | Mechanical Team
Sep 2016 – Jun 2018 | Stanford, CA
- Designed and manufactured canopy latching system
- Machined hardpoints, linkages, inserts, fixtures and other parts to tight tolerances with a CNC mill
- Helped complete composite layups for the car's aerobody
- Helped construct and manufacture various mechanical systems on the car

### TIGER INNOVATIONS | Intern
Jun 2016 – Sep 2016 | Herndon, VA
- Tested and debugged an issue with the RF IC of a small satellite
- Modified and checked multiple RF IC system parameters
- Wrote software to test fixed RF system

### NASA GODDARD | Innovation Lab Intern
Jun 2015 – Jul 2015 | Greenbelt, MD
- Helped design and build hardware surrounding a small scale commercial robotic arm
- Worked with machinists and technicians to create parts
- Created an image processing program with OpenCV that gave target coordinates to the arm
- Completed the lower level electronics and programming to interface with the arm

## PROJECTS
- MPC for Quadruped Robots using Reduced Order Models
- Kalman Filter based State Estimation for Legged Robots
- Group Lasso Regularized Trajectory Optimization using ADMM

## PUBLICATIONS
- ALTRO-C: A Fast Solver for Conic Model-Predictive Control
  Brian Jackson, **Tarun Punnoose**, Daniel Neamati, Kevin Tracy, Rianna Jitosho, and Zac Manchester
  International Conference on Robotics and Automation (ICRA). (Submitted)