

# Jedidiah Alindogan

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## EDUCATION

### B.Sc. in MechE

California Institute of Technology  
09/2021 - 06/2023

### A.Sc. in - Physics, Math, MechE, and EE

American River College  
06/2018 - 06/2021

## SKILLS

### Programming Proficiencies

- Python, C++, C#

### Computation

- MATLAB, Mathematica




### Simulation

- ANSYS, ROS 1, ROS 2, Gazebo

### CAD

- Solidworks, Fusion360

## LINKS

 [jedi-alindogan.github.io](https://github.com/jedi-alindogan)  
 [github.com/jedi-alindogan](https://github.com/jedi-alindogan)  
 [www.linkedin.com/in/495-jedidiah-alindogan](https://www.linkedin.com/in/495-jedidiah-alindogan)

## HONORS & AWARDS

2022 - Tau Beta Pi Honors Society  
Member

2021 - 2022 NASA BIG Idea Challenge  
Finalist

2019 - NASA Community College  
Aerospace Scholar

2018 - Bella Vista High School  
Valedictorian Scholar

2018 - Science Olympiad Experimental  
Design State Champion

2017 - Science Olympiad Optics State  
Champion

## RELEVANT COURSES

ME Design Lab Competition;  
ME Experiments and Modeling;  
Dimensional and Data Analyses;  
Mechanics: Statics and Dynamics of Rigid  
Bodies, Deformable Bodies, and Fluids;  
Thermal Sciences: Classical  
Thermodynamics and Transport;  
Robotics I: Manipulation, Kinematics,  
Dynamics;  
Robotics II: Planning, Navigation, and  
Perception;  
Robotics Lab: Localization and Perception  
Project;  
Optimal Control and Estimation;  
Probability Models;  
Game Theory

## PROJECTS

### Unicycle Localization and Planning

2023

- ROS2, Linux, Git, Python
- Assembled and implemented algorithms to localize, plan trajectories, and navigate around obstacles autonomously via ROS2 and Python.
- Integrated information of Hall effect encoders, IMU, LiDAR, and camera sensors.

### NASA BIG Idea Challenge

2021-2022

- Solidworks, Matlab
- Collaborated with a team of student engineers to design and prototype a cable-traversing robot for lunar exploration.
- System was designed to satisfy NASA's TR4/TR5 readiness level (i.e. tested system in laboratory and relevant environment).

### Data-Driven Discovery of Differentially Flat Coordinates

2022

- Pytorch, Git
- Developed an autoencoder to learn differentially flat coordinates for a unicycle and a quadrotor for trajectory generation.

### Probabilistic Road Map Planning for High DOF Robot Arms

2021

- Python, ROS, Git
- Researched variations of RRT in probabilistic road map planning for different robot arm schematics.

### Stewart Platform Catching Simulation

2021

- C++, Python, Gazebo, Git
- Studied the inverse kinematics and numerical Jacobian for a Stewart Platform.
- Programmed the platform to catch projectiles.

## EXPERIENCE

### Research Engineering Staff - Caltech

08/2023 - 08/2024

- Experimentation, Simulation, Python, ROS, Gazebo
- Actively contribute to the design and execution of experiments, employ advanced simulations, and engage in software development within the Autonomous Robotics and Control Lab.

### Summer Undergraduate Research Fellow - Caltech

06/2022 - 08/2022

- Machine Learning and Planning
- Developed an autoencoder to construct trajectories for nonlinear dynamical systems using differentially flat coordinates at the Autonomous Robotics and Control Lab.

### DESIGN Hub Intern - Los Rios Community College District

01/2020 - 12/2020

- ISO 9001 QMS Operation
- Developed various applications including a 2D Moonshot simulation, SARS Active Site Gamification, and a web application for remote test distribution.

### Program Assistant - Los Rios Community College District

08/2019 - 05/2021

- Teaching and Management
- Coordinated with tutors to facilitate STEM Center operations in outreach and tutoring for students.

## VOLUNTEERING

### Rise Tutor - Caltech Y

2022-2023

- Advise, mentor, and tutor high school students in STEM subjects.

### Social Director Team - Avery House, Caltech

2022-2023

- Volunteer in organizing, planning, and running social events for student life on campus.

### Fair Oaks Library Volunteer - Fair Oaks Public Library

2018-2021

- Over 120 hours volunteering at the Fair Oaks Public Library to assist in community events and organize texts.

## PAPERS

"Lunar Architecture for Tree-Traversal In-service-of Cabled Exploration (LATTICE)," NASA, 2022.