

# TRAVIS DRIVER

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## EDUCATION

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<b>Georgia Institute of Technology</b> <i>Doctor of Philosophy, Robotics</i> Advisor: Professor Panagiotis Tsiotras	2019 - Present <i>GPA: 4.00/4</i>
<b>The University of Texas at Austin</b> <i>Bachelor of Science, Computational Engineering, High Honors</i>	2015 - 2019 <i>GPA: 3.93/4</i>

## RESEARCH EXPERIENCE

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<b>Dynamics and Control Systems Lab (DCSL)</b> <i>Graduate Research Assistant</i>	August 2019 - Present <i>Atlanta, GA</i>
· Conducting research in computer vision, 3D perception, and navigation for proximity operations in space.	
<b>Autonomous GNC Lab</b> <i>Undergraduate Research Assistant</i>	September 2018 - May 2019 <i>Austin, TX</i>
· Designed and implemented computer vision algorithms for autonomous navigation of robotic rover platform	
· Implemented feature-based detection and tracking algorithms to resolve relative pose of target object	
· Demonstrated successful autonomous rendezvous operation of robotic platform with target object	
<b>Texas Spacecraft Lab</b> <i>Algorithms Team Lead (Sept. 2017 - Jan. 2018), Systems Engineer (June 2017 - Sept. 2017)</i>	June 2017 - January 2018 <i>Austin, TX</i>
· Led team of 5+ engineers to implement machine learning and computer vision algorithms to detect target spacecraft	
· Created a Python-based GUI to track and display spacecraft electrical power systems data	
· Conducted workshops to teach 20+ new members core concepts in Python and Git	
<b>Institute for Computational Engineering and Sciences</b> <i>Undergraduate Research Assistant</i>	May 2017 - August 2017 <i>Austin, TX</i>
· Implemented and evaluated novel clustering methods for an optimization and integration software library	
· Constructed programs to evaluate an advanced uncertainty quantification software library (QUESO) in C++	
· Improved variable assignment and subroutine methods to increase script efficiency of test programs	

## INDUSTRY EXPERIENCE

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<b>Sandia National Laboratories</b> <i>Software R&amp;D Intern</i>	June 2019 - August 2019 <i>Albuquerque, NM</i>
· Implemented visual-SLAM algorithms for GPS-denied autonomous drone navigation	
· Trained and optimized convolutional neural networks to efficiently identify objects in X-ray images	
<b>Northrop Grumman</b> <i>Guidance, Navigation &amp; Control Engineer Intern</i>	January 2018 - August 2018 <i>Wallops Island, VA</i>
· Implemented novel Inertial Navigation System (INS) calibration methods improving performance by ~ 43%	
· Designed a software interface to configure the on-board Flash memory of the Attitude Control System	
· Created an automated testing module to collect data and analyze the performance of the developmental INS	
· Conducted post-flight analysis of the reported angular rates and attitude of the INS to evaluate performance	

## TEACHING EXPERIENCE

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### COE 301: Introduction to Computer Programming

August 2017 - December 2017

*Teaching Assistant, The University of Texas at Austin*

*Austin, TX*

- Aided in teaching core programming concepts in MATLAB, C++, and Fortran to a class of 100+ engineering students
- Taught students course material one-on-one through 2 one-hour sessions of office hours per week
- Assisted in creating course material and homework assignments focused on key programming concepts

## PUBLICATIONS

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1. M. Dor, K. Skinner, T. Driver, and P. Tsiotras. Visual SLAM for Asteroid Relative Navigation. In *IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 1st Workshop on AI for Space, Virtual, June 2021
2. T. Driver, M. Dor, K. Skinner, and P. Tsiotras. Space Carving in Space: A Visual SLAM Approach to 3D Shape Reconstruction of a Small Celestial Body. In *AAS/AIAA Astrodynamics Specialist Conf.*, Lake Tahoe, CA, USA, August 2020

## HONORS & AWARDS

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NASA Space Technology Graduate Research Fellowship, *NASA* (2021 - Present)

President's Fellowship, *Georgia Institute of Technology* (2019 - Present)

University Honors, *The University of Texas at Austin* (2015 - 2019)

## SKILLS

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**Programming:** C++, C, Python, MATLAB, C#, Fortran, Bash, Java

**Software:** GTSAM, ROS, OpenCV, PyTorch, Tensorflow, Blender, SolidWorks

**Certifications:** Technician Class Operator Radio License, NASA GSFC Electrostatic Discharge Operator