

# DANIEL MARTINEZ

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## PROFESSIONAL EXPERIENCE

**Caterpillar, Inc. (LanceSoft)**, Peoria, IL

Jun. 2015 – Present

**R&D Robotics Engineer** – Automation Systems Development Team

- Responsible for developing and demonstrating automation technologies, which are often used in conjunction with information systems, remote control, semi-autonomous, and fully autonomous machine control systems.
- Worked in tandem with senior project lead on the development and application of positioning and mission planning technologies and systems.
- Developed and implemented pose estimation algorithms.
- Successfully planned and executed field testing of pose estimation system at company proving grounds.
- Developed sensor interface and logging applications.
- Supported existing autonomy software by learning and documenting existing algorithms.
- Gained extensive experience with Perception, Positioning, and Mission Planning on mobile robotic platforms.
- Developed software for use in a distributed architecture system (similar to ROS), with an Object-Oriented codebase (C++, C), in a Linux environment.
- Worked extensively with the selection, implementation, and testing of high end IMU and GPS sensor components as part of the development of a Strapdown Inertial Navigation System.
- Played a vital role in significantly improving pose system accuracy.
- Became the team's rapid prototyping expert, helping to quickly model and 3D print custom mounts, brackets, and housings in support of ongoing research projects.

**United States Navy**, MTS- 626 Charleston, SC

2002–2007

**Naval Nuclear Power Training Unit (NPTU)**

2002–2007

**Nuclear Power Plant Operator, Senior Reactor Operator – Instructor**

- Highly skilled reactor operator and maintenance technician with hands-on and supervisory experience.
- Crew's expert on the Engineered Safety Features and Supplemental water injection systems.
- Developed an extensive knowledge in radiological controls and APD maintenance as the crew's leading CMG petty officer. Selected as lead reactor operator for drill evolutions.
- Demonstrated outstanding reactor system aptitude and troubleshooting skills on the system and component level.

### Teamwork

- Extensive experience in operating as part of a watch team in all aspects of U.S. Navy submarine reactor and steam plant operation.
- Assigned and scheduled technicians according to skill and experience.
- Extensive experience supervising personnel in operations, maintenance, troubleshooting, and repair.

### Testing

- Tested, calibrated, maintained, and repaired electronic and hydraulic-electric systems that support reactor plant operations.
- Operated, maintained, and repaired reactor instrumentation and control systems.

### Training

- Selected among many peers to become a Nuclear Power Instructor at NPTU Charleston
- Provided theoretical and hands-on training to in all aspects of the safe operation of naval nuclear power plants

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## EDUCATION

**Georgia Institute of Technology, Atlanta, GA**

**Master of Science in Computer Science**

Aug 2016 – Dec 2018

**Specialization Track : Computer Vision and Robotics**

**Florida International University, Miami, FL**

**Bachelor of Science in Mechanical Engineering (BSME)**

2015

**Professional Certificate in Robotics Engineering**

2015

**Overall GPA 3.6/4.0, Honors and Awards Dean's List**

**Relevant Courses** Circuits, CAD, Programming for ME, Mechatronics, Sensors & Signal Processing, Simulation Software, Modeling and Control of Robots, Robot Design, Robotics Undergraduate Research

**Navy Schools, Charleston, SC**

2007

Naval Leadership Development, Self-Contained Breathing Apparatus and Respirator Qualification, Core Maintenance Group (CMG), Naval Nuclear Power School, Naval Nuclear Power Training Unit, Electronics Technician "A" School, Basic Firefighting.

**Honors and Awards** COs letter (1), Good conduct (1)

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## AFFILIATIONS

**Engineering Honors Society- Tau Beta Pi**

2013–Present

**Central Illinois Robotics Club (CIRC)**

2015–Present

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## PROFESSIONAL DEVELOPMENT

**University of Pennsylvania Robotics Specialization (Coursera)**

University of Pennsylvania's Robotics Specialization series consisted of six courses designed to expose students to a wide array of topics in the Robotics field. Some of the areas covered in the course work included robot flight and movement, visual perception, estimation, navigation, and control theory. The course concluded with a hands-on capstone project.

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## PROJECTS

**UPenn Robotics Capstone Project**

The project goal was to develop an autonomous mobile robotic platform that featured an embedded Linux device running ROS, a motor controller, an IMU, and a camera. With April Tag measurements and a known map, the rover was able to successfully localize, plan a path, navigate that path, and maintain an up-to-date pose estimate, all autonomously.

**BSME Senior Design Project**

Designed, built, and programmed a remotely operated submersible vehicle (ROV) as a member of a three person team. I was responsible for planning and implementing the control code in MATLAB.

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## CONFERENCE PAPERS AND PRESENTATIONS

Daniel Martinez, Daniella Motro, Santiago Nino, Sabri Tosunoglu. *Wireless and Autonomous Guide Platform to Assist the Visually Impaired Through Unfamiliar Spaces*. Proceedings of the 28th Florida Conference on Recent Advances in Robotics, FCRAR 2015, Melbourne, Florida, May 14-15, 2015.

Daniel Martinez, Ryan Wright, Edgar English. *Remotely Operated Underwater Vehicle*. Proceedings of the 27th Florida Conference on Recent Advances in Robotics, FCRAR 2014, Miami, Florida, May 8-9, 2014.

Daniel Martinez. *Fire Reconnaissance Rover*. Proceedings of the 27th Florida Conference on Recent Advances in Robotics, FCRAR 2014, Miami, Florida, May 8-9, 2014.

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## SKILLS

**Software:** Linux, ROS, MATLAB, Eclipse, SolidWorks, Simulink, Labview, OpenCV, Visual Studio, MS Office Suite.

**Manufacturing and Machining:** 3D printing, mills, lathes, band saws, grinders, shears, drill presses, soldering, etc.

**Programming Languages:** C/C++, Python, MATLAB; **Spoken Languages:** Fluent in English, Fluent in Spanish