

INGRID NAVARRO







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[navars.xyz](#)

Robotics Graduate Student at Carnegie Mellon University







EDUCATION

-  **M.S. in Robotics** — *Carnegie Mellon University*  Aug 2020 – present
Coursework: Math for Robotics (16-811), Computer Vision (16-720)
-  **B.S. in Computer Engineering** — *Tecnológico de Monterrey*  Aug 2014 – May 2019
-  **Exchange Student in Computer Engineering** — *École Polytechnique de Montréal*  Aug 2017 – Dec 2017

SERVICE

-  **Admissions Committee for the RISS program** — *Carnegie Mellon University*  January 2021

RESEARCH EXPERIENCE

-  **Graduate Researcher** — *Bot Intelligence Group (BIG) at Carnegie Mellon University*  Aug 2020 – Present
Working on *Embodied AI* tasks that require multi-modal reasoning through computer vision and natural language to complete goals.
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-  **Undergraduate Research Intern** — *Navlab at Carnegie Mellon University*  Jun 2018 – Aug 2018
Worked on semantic segmentation of 3D point clouds from low-end sensors using computer vision and plane-fitting methods.
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-  **Undergraduate Research Intern** — *Navlab at Carnegie Mellon University*  June 2017 – August 2017
Worked on wheelchair detection and tracking in cluttered environments using deep learning-based computer vision methods.

RESEARCH INTERESTS

Embodied AI

Reinforcement Learning







Deep Learning

Robotics







Computer Vision

Motion Planning

WORK EXPERIENCE

-  **Robotics Software Engineer** — *Stealth Mode Startup*  Jan 2020 – Aug 2020
Designed algorithms and simulations to build collision detection framework for a surgical robot manipulator.
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-  **Computer Vision Engineer** — *X-LAB Protexa R&D*  Nov 2019 – Jul 2020
- **Project 1:** Designed a prototype of a visual inspection system to detect paint defects on vehicles.
 - **Project 2:** Designed a prototype of a visual navigation stack for an autonomous mobile robot.
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-  **Computer Vision Intern** — *Carbon Robotics*  Jul 2019 – Sep 2019
Designed a scheme to evaluate the accuracy of a camera calibration system using an motion capture system and plane fitting methods.

RELEVANT PROJECTS

-  **Reward Learning in Navigation** — *Carnegie Mellon University*  Dec 2020
Final project for 16-811 Math fundamentals for robotics
Implemented Reinforcement Learning algorithms to train agents to navigate in indoor environments.
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-  **Home Service Robot** — *Robotics Software Engineer Udacity Nanodegree*  Apr 2020
Used ROS to simulate a home service robot which uses SLAM and path planning to navigate and move objects from room to room.
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-  **Perception System of Autonomous Boat** — *Tecnológico de Monterrey*  Jan 2018 – May 2019
Final project for IA-95012 Intelligent Systems
Worked on the design of the perception stack for an autonomous boat that had to navigate through multiple obstacle courses.

PUBLICATIONS

Poster Presentations

- Navarro, I. and L. Navarro-Serment (2018). "Real-Time Semantic Segmentation System of Sparse LiDAR Point Clouds using Lightweight CNNs and Recurrent CRF". in: *RISS Working Papers Journal* Vol. 6, pp. 105–111.
- Navarro, I. and L. E. Navarro-Serment (2017). "A Faster RCNN-Based Wheelchair Recognition System". In: *RISS Working Papers Journal* Vol. 5, pp. 125–132.











Conference Proceedings

- Navarro, I., A. Herrera, et al. (2018). "Data Augmentation in Deep Learning-based Obstacle Detection for Autonomous Navigation on Aquatic Surfaces". In: *Advances in Computational Intelligence. 17th Mexican International Conference on Artificial Intelligence, MICAI 2018, Guadalajara, Mexico, Proceedings, Part II*. vol. 11289. Springer International Publishing, pp. 342–353.

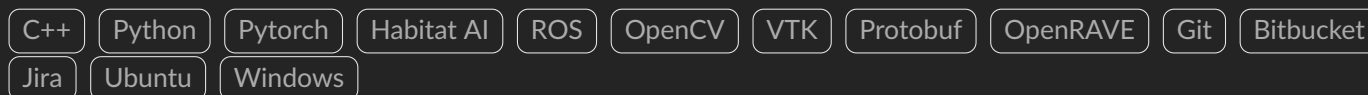
CERTIFICATIONS

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|---|--|
|  Robotics Software Engineer — Udacity Nanodegree |  Apr 2020 |
|  IBM Introduction to Data Science — IBM, Coursera |  May 2019 |
|  Neural Networks — DeepLearning.ai, Coursera |  Jan 2018 |
|  Machine Learning — Stanford, Coursera |  Oct 2017 |

HONORS / AWARDS

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|---|--|
|  Top student of the Department of Engineering — Tecnológico de Monterrey |  Apr 2018 |
|  RoboCup Platform Soccer League Competition, 1st place. — Mexican Robotics Tournament |  May 2018 |
|  Emerging Leaders in the Americas Program (ELAP) Scholarship Recipient — Government of Canada |  Aug 2017 |
|  Scholarship recipient — Santander - Tecnológico de Monterrey |  May 2017 |
|  Hackathon MTY, Junior Category, 1st Place — Major League Hacking |  Mar 2016 |

SKILLS



LANGUAGES

