

Mateus Valverde Gasparino

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SUMMARY

I am a Ph.D. candidate in **Computer Science** with extensive experience in robotics. As a **full-stack roboticist**, I have worked on everything from hardware design to high-level perception algorithms. Currently, I focus on perception and learning-based control systems for real-world robotics applications, with a particular interest in developing generalizable navigation methods that can be applied across different robotic platforms. My expertise lies in making robots work effectively in real-life environments.

EDUCATION

University of Illinois at Urbana Champaign

Ph.D. candidate in Computer Science

Urbana-Champaign, IL, USA

Dec. 2024

University of São Paulo

Master's in Mechanical Engineering, specialization in robotics

São Carlos, SP, Brazil

Sep. 2019

University of São Paulo

Bachelor's in Mechatronics Engineering

Recipient of Highest GPA Award

São Carlos, SP, Brazil

Dec. 2016

HIGHER EDUCATION EXPERIENCE

Amazon Robotics

Applied Scientist II Co-op

North Reading, MA, USA

July. 2023 – Dec. 2023

- Researched and designed solutions based on real robot data.
- Developed perception and mapping algorithms for robots in fulfillment centers.
- Developed scalable solutions with strong research components.

University of Illinois at Urbana-Champaign

Research Assistant

Champaign, IL, USA

Jan. 2020 - Now

- Researching generalizable and foundation models for robot navigation in challenging environments.
- Developed novel navigation and perception algorithms for robots in unknown unstructured environments.
- Created learning-based control for partially known and unknown dynamic systems.

EarthSense Inc.

Research Engineer Intern

Champaign, IL, USA

May. 2022 – Aug. 2022

- Developed autonomous navigation algorithms for field robots.
- Trained network models for perception systems for outdoor unstructured environments.

University of São Paulo

Master's Researcher

São Carlos, SP, Brazil

Jan. 2017 - Sep. 2019

- Designed and projected systems to improve small robots' capabilities in the field.
- Designed perception algorithm for cluttered environments in real outdoor environments.

University of Illinois at Urbana-Champaign

Research Intern

Champaign, IL, USA

Jul. 2018 - Jan. 2019

- Designed and implemented autonomous navigation systems for agricultural robots.
- Performed experiments on a robotic platform in a real crop environment.

Eaton

Engineer Intern

Mogi Mirim, SP, Brazil

Jan. 2016 - Dec. 2016

- Worked on the quality section of truck transmissions.
- Led a team to solve the problem of particles in transmission parts at the end of the truck gears production line.

Near Earth Autonomy

Engineer Intern

Pittsburgh, PA, USA

May 2014 – Aug. 2014

- Analyzed visual and thermal perception solutions to be embedded in autonomous helicopters.
- Created tools to analyze camera data and compare the efficiency of different sensors embedded in a helicopter exposed to different conditions.

MAIN PUBLICATIONS

Gasparino, M. V., Sivakumar, A. N., & Chowdhary, G. (2024). WayFASTER: a Self-Supervised Traversability Prediction for Increased Navigation Awareness. *In 2024 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE.

Gasparino, M. V., Sivakumar, A. N., Liu, Y., Velasquez, A. E., Higuti, V. A., Rogers, J., ... & Chowdhary, G. (2022). WayFAST: Navigation with predictive traversability in the field. *IEEE Robotics and Automation Letters*, 7(4), 10651-10658.

Gasparino, M. V., Higuti, V. A., Sivakumar, A. N., Velasquez, A. E., Becker, M., & Chowdhary, G. (2023, May). Cropnav: a framework for autonomous navigation in real farms. *In 2023 IEEE International Conference on Robotics and Automation (ICRA)* (pp. 11824-11830). IEEE.

Gasparino, M. V., Mishra, P. K., Hart, J., Waanders, B. B., & Chowdhary, G. (2023). Learning based model predictive control with deep neural network. *Under review*.

Sivakumar, A. N., Modi, S., **Gasparino, M. V.**, Ellis, C., Velasquez, A. E. B., Chowdhary, G., & Gupta, S. (2021). Learned visual navigation for under-canopy agricultural robots. *Robotics: Science and Systems*.

PATENTS

Chowdhary, G., **Gasparino, M.**, Narentherian, A., Higuti, A. and Baquero, A., EarthSense Inc, 2024. *System and method for autonomous navigation of a field robot*. U.S. Patent Application 18/072,114.

SKILLS

Programming Skills:

- Python / Pytorch
- C/C++
- ROS / ROS 2

Language Skills:

- Fluent in Portuguese
- Advanced in English
- Advanced in Spanish