Mateus Valverde Gasparino

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SUMMARY

I am a Ph.D. student in Computer Science with experience in robotics. I have worked from designing robots to high-level perception algorithms. Currently, I work with perception and learning-based control systems for real robots. I am specialized in making robots work in real life!

EDUCATION

University of Illinois at Urbana Champaign — Urbana-Champaign, IL, USA
Ph.D. student in computer science — Current

University of São Paulo — São Carlos, SP, Brazil
Master's in mechanical engineering with research in robotics — Sep. 2019

University of São Paulo — São Carlos, SP, Brazil
Bachelor's in mechatronics engineering — Dec. 2016
Awarded for the highest GPA in the class

HIGHER EDUCATION EXPERIENCE

University of Illinois at Urbana-Champaign — **Champaign, IL, USA**
Research Assistant — Jan. 2020 - Now

- Research and design autonomous navigation algorithms for field robots.
- Develop novel perception algorithms for robots in unknown unstructured environments.
- Study learning-based control for partially known and unknown dynamic systems.

EarthSense Inc. — **Champaign, IL, USA**
Research Engineer Intern — 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 — **São Carlos, SP, Brazil**
Master's Student Researcher — Jan. 2017 - Sep. 2019

- Designed and projected systems to improve small robots' capabilities in the field.
- Analyzed sensor data collected in a real farm environment.
- Designed perception algorithm for cluttered environments in real outdoor environments.

University of Illinois at Urbana-Champaign — **Champaign, IL, USA**
Research Intern — 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 **Mogi Mirim, SP, Brazil**
Engineer Intern 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 **Pittsburgh, PA, USA**
Engineer Intern 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., Liu, Y., Velasquez, A. E., Higuti, V. A., Rogers, J., Tran, H., & 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). CropNav: a Framework for Autonomous Navigation in Real Farms. *Accepted for 2023 IEEE International Conference on Robotics and Automation (ICRA)*.

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*.

Gasparino, M. V., Higuti, V. A., Velasquez, A. E., & Becker, M. (2020). Improved localization in a corn crop row using a rotated laser rangefinder for three-dimensional data acquisition. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 42(11), 1-10.

Velasquez, A. E. B., Higuti, V. A. H., **Gasparino, M. V.**, Sivakumar, A. N., Becker, M., & Chowdhary, G. (2021). Multi-sensor fusion based robust row following for compact agricultural robots. *Field Robotics*.

Mishra, P. K., **Gasparino, M. V.**, & Chowdhary, G. (2023). Deep Model Predictive Control with stability guarantees. Under review at *IEEE Transactions on Automatic Control*.

SKILLS

Programming Skills:

- Python / Pytorch
- C/C++
- SolidWorks
- ROS
- Matlab

Language Skills:

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