SERGIO E. GARCÍA-VERGARA

✉ 2799 White Oak Ln •Decatur, GA 30032

☎ Cell: (787) 383 - 0475

e✉ sergiodotgarcia@gmail.com •⍟github.com/sgarciav

SUMMARY

- More than 11 years of experience in algorithm development for autonomous robotic systems, software engineering, pattern recognition and machine learning, and human-robot interaction.

- Extensive experience conducting system field tests and user studies, including experiment design and data analysis.

EDUCATION

Georgia Institute of Technology   **Atlanta, GA**
Ph.D. in Electrical and Computer Engineering   May 2017
Dissertation: *Coupling of an Objective and Quantifiable Methodology for Assessing Upper-body Movements with VR Gaming Platforms*

Georgia Institute of Technology   **Atlanta, GA**
MS in Electrical and Computer Engineering   May 2014
Minor: *Computer Science*

University of Puerto Rico at Mayagüez   **Mayagüez, PR**
BS in Electrical Engineering   June 2011

SKILLS

Programming Languages	Python, C, C++, C#, Java, Matlab
Software Frameworks	ROS1 & ROS2, TensorFlow, PyTorch, YoloV5, CVAT, FiftyOne
Tools	Docker, CMake, Git, Cygwin, Bash, LaTeX, Emacs
Robotic Platforms	Dingo, DARwin-OP, Pioneer 3-AT, BlueEagle, DJI S1000
Languages	Fully proficient in English and Spanish. (Basic knowledge in German).

WORK EXPERIENCE

CTO & Co-founder   October 2020 - present
RIF Robotics Corp. | Atlanta, GA

- Developing a system to autonomously inspect surgical instruments and assemble surgical trays to help hospitals reduce patient infections and operating room delays with robotics, artificial intelligence, and predictive analytics.

- Responsible for technical development, fundraising, proposal writing, and customer interfacing.

Robotics Consultant   February 2021 - October 2022
Greenzie | Atlanta, GA

- Provided freelance consulting services to the development team towards enhancing the autonomy architecture software of their autonomous lawnmowers.

- Tasks included improved pipeline for obstacle detection and avoidance, improved navigation solutions, and research updating autonomy architecture from ROS1 to ROS2.

Research Engineer II   January 2017 - October 2020
Georgia Tech Research Institute | Atlanta, GA   *Supervisor: Dr. Charles Pippin*

- Developed algorithms for collaborative autonomous systems including, but not limited to, task allocation, path planning, and computer vision.

- Helped develop the lab's autonomy architecture software and build system.

- Responsibilities included software and algorithm development, field testing autonomous systems, proposal creation, technical reporting, customer interfacing, and project management.

Graduate Research Assistant   May 2012 - December 2016
Georgia Tech HumAnS Lab | Atlanta, GA   *Supervisor: Dr. Ayanna M. Howard*

- Developed an interactive virtual reality gaming system for rehabilitation in the home environment.

- Developed an objective and quantifiable methodology for evaluating the kinematic performance of individuals who have some form of motor skills disorder.

- Developed a pattern recognition algorithm to determine the level of the user's kinematic performance such that the virtual reality platform can autonomously adapt to the user's needs.

PUBLICATIONS

Journal Publications and Book Chapters

1. Y.P. Chen, **S. García-Vergara**, and A.M. Howard, "Effect of feedback from a socially interactive humanoid robot on reaching kinematics in children with and without cerebral palsy: a pilot study," *Developmental Neurorehabilitation*, Vol. 21, No. 8, pp. 490-496, 2018.

2. **S. García-Vergara**, L. Brown, H.W. Park, and A.M. Howard, "Engaging children in play therapy: The coupling of virtual reality games with social robotics," *Technologies of Inclusive Well-Being*, Springer Berlin Heildelberg, pp. 139-163, 2014.

Refereed Conference Publications

1. **S. García-Vergara**, L. Brown, Y.P. Chen, and A.M. Howard, "Increasing the Efficacy of Rehabilitation Protocols for Children via a Robotic Playmate Providing Real-time Corrective Feedback," *IEEE Conference on Robot and Human Interactive Communication (Ro-Man)*, pp. 700-705, 2016.

2. **S. García-Vergara**, M.M. Serrano, Y.P. Chen, and A.M. Howard, "Developing a Baseline for Upper-body Motor Skill Assessment Using a Robotic Kinematic Model," *IEEE Conference on Robot and Human Interactive Communication (Ro-Man)*, pp. 911-916, 2014.

PATENTS

Patents

1. R.E. Torres-Muñiz, **S.E. García-Vergara**, B.A. Llorens-Bonilla, D. Sánchez-Cordero, and M. Lizama, "Switch-Actuated Joystick for Power Wheelchairs", U.S. Patent 8 622 166 B1, January 7, 2014.

Developed a switch-actuated adapter for joystick controlled wheelchairs such that individuals with limited mobility can continue making use of their chairs and avoid spending money on new ones.