SERGIO E. GARCÍA-VERGARA

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SUMMARY

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

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

- Extensive experience problem solving skills in academic and industry environments.

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
Graduated Cum Laude
Minor: *Computer Science*

University of Puerto Rico at Mayagüez   **Mayagüez, PR**
BS in Electrical Engineering   June 2011
Graduated Magna Cum Laude

SKILLS

Programming Languages	Python, C, C++, C#, Java
Engineering Software	ROS1 & ROS2, Matlab, LabView, Simulink
Operating Systems	Linux, Windows
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

- Automating the surgical instrument pipeline at sterile processing pipeline in setrile processing departments at hospitals.

- Developing computer vision and machine learning models to identify and manipulate surgical instruments with robotic arms.

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

- Provided freelance consulting services to help the development team's

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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 algorithm development, software development, 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 AND PRESENTATIONS

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.

3. R.C. Arkin, **S. García-Vergara**, and S.G. Lee, "Architectural Design and Support for Knowledge Sharing Across Heterogeneous MAST systems," *SPIE Conference*, pp. 84070C, 2012.

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.