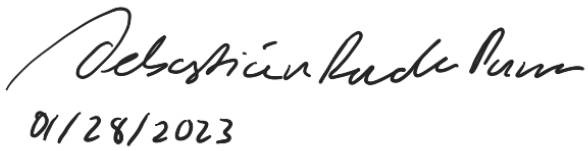
Sebastian Rueda Parra



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Summary Statement

I am an Engineer in Electronics with research experience. My training has been focused on the design of hardware and firmware for embedded (micro-controlled) systems, robotics, and specially advanced digital signal processing techniques. During my PhD I used digital signal applied to neurophysiology for processing electroencephalography (EEG) and electromyography (EMG) to investigate aspects of motion and sensation, such as proprioception. The main goal of my work was to enhance the assessment of upper-extremity impairment resulting from motor disorders like stroke. My research interests include brain functional and specific connectivity, corticomuscular coherence, artificial intelligence, and applications that merge robotic information from exoskeleton robots with electrophysiological activity.

Experience

Research assistant
University of Idaho Moscow, Idaho
July-2017 – 2022

Research on Bio-signal processing for stroke mobility understanding. Research in exoskeleton robots.

Teaching assistant
University of Idaho Moscow, Idaho
July-2017 – 2022

Teaching Electrical circuits, and digital logic lab.

Research and development engineer
Links ingeniería Cali, Colombia
January-2016 - June-2017

Design and development of embedded systems (Hardware, Firmware and software) for sugar cane monitoring during farming process.

Research Assistant group perception and intelligent systems
Universidad del Valle
Cali, Valle del Cauca Colombia
September-2014 - January-2016

Design and development of mobile robots for algorithmic thinking teaching.

Internship
Fraunhofer Institute IWES Kassel, Germany.
March-2014 - July-2014

Development of a neural network or polynomial regression-based algorithm for electric load forecasting.

Education

PhD
Electrical engineering

University of Idaho, Moscow, Idaho.
December 2022.

Bachelor
Engineer in Electronics

Universidad del Valle,Cali, Colombia
July 2016

Honors

2020	Outstanding Teaching assistant, Electrical Engineering department, University of Idaho
2013	DAAD young Engineer scholarship holder
2010, 2011, 2012, 2015	Scholarship for Top 5 best GPA scores, Engineering in Electronics, Universidad del Valle

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Contributions to science:

Articles

Rueda, S., Perry, J., Wolbrecht, E. & Gupta, D. (2022) Neural correlates of Bilateral Proprioception and Adaptation with Training. Submitted/ in Review (PLOS ONE, manuscript in review).

Maura, R., Rueda, S., Stevens, R., Weeks, D., Wolbrecht, E., & Perry, J. (2022) Literature Review of Sensor-Based Upper Extremity Stroke Assessment via EEG, EMG, Kinematic and Kinetic Measurements and Their Reliability, Submitted/ in Review (JNER, manuscript in review).

Cortes, E. B. B., Gaviria, B. F., & Rueda, S. (2017). Development of a set of mobile robots for basic programming experimentation. *Revista UIS Ingenierías*, *16*(2), 207-216.

Abstracts and posters

Rueda, S., Perry, J., Wolbrecht, E., Reinkensmeyer, D., & Gupta, D. Pre-training neural correlates for predicting gains from robot-assisted finger training after stroke**.** 2022 ASNR (American Society for Neurorehabilitation).

Rueda, S., Perry, J., Wolbrecht, E., & Gupta, D. Neural Correlates of Bilateral and Unilateral Proprioception in People with Musical Instrument Training. 2022 SfN (Society for Neuroscience).

Rueda, S., Perry, J., Wolbrecht, E., & Gupta, D. Visualization of multivariate behavioral data in stroke subjects during robotic rehabilitation therapy for fingers. 2021 SfN (Society for Neuroscience).

Ketkar, V., Rueda, S., Glasgow, I., Gonzalez, J., Perry, J., & Wolbrecht, E. Design and Development of a Spherical Five-Bar Thumb Exoskeleton Mechanism for Post-Stroke Rehabilitation. 2021 ICORR **(**International Conference on Rehabilitation Robotics).

Rueda, S, Wolbrecht, E., & Perry, J. Characterization, Identification, and mitigation of movement artifacts in electroencephalographic measurements toward robot-aided neuromuscular assessment. 2019 ASNR **(**American Society for Neurorehabilitation).

Skills:

- Programming languages: C, C++, Arduino C, Matlab, Android, VHDL, Python, Java.
- Good social skills and communication in and out work environment. With will of learning, teaching, and accomplishing personal and job goals.
- Scientific writing and public speaking.

Languages:

Spanish
First language.

English
Advanced. Toefl 2017.

German
Advanced. TestDaf 2014.