

Juan Sebastián Cely Gutiérrez

M.Sc. in Robotics, B. E. Mechatronic Engineering

Colombian

Madrid, Spain

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Mechatronic Engineer graduated from Universidad Militar Nueva Granada, Bogotá-Colombia, Graduate with Meritorious Grade Work, M.Sc. in Automation and Robotics by Universidad Politécnica de Madrid, Madrid-Spain. Currently Ph.D. student in Automation and Robotics, with experience on research and development in robotics and automation projects. Plus, I taught classes in math, physics, electronics, robotics and informatics, in free courses and professionals guilds. Actually, I am researcher at Centre for Automation and Robotics UPM-CSIC, in where my research interests lie on Geometric Algebra for control and navigation of under-actuated robots, dynamic of underwater robots and low-gravity robots.

STUDIES

Currently
Madrid - Spain

Ph.D. student in Automation and Robotics

Topic: *Geometric Algebra for control and navigation of underwater robots*
Universidad Politécnica de Madrid

2017
Madrid - Spain

M.Sc. Automation and Robotics

Universidad Politécnica de Madrid

2015
Bogotá - Colombia

B.Eng. Mechatronic Engineering

Universidad Militar Nueva Granada
Grade Work with distinction Meritorious

Languages:

Spanish: Mother Language

English: Advanced (IELTS - B2)

German: Basic - Intermediate

SKILLS

Team Work, Robotics Design, Robotics Control, engineering software, design and development of software/algorithms, Operating System based on Linux, Programming Languages (C, C++, C#, Python, Java), ROS (Robotic Operating System), Matlab, LabView, Solidworks, Inventor, ADAMS MSC Software, AWS-IoT.

WORK EXPERIENCE

Mar. 2017 – Currently

Madrid, Spain

UNIVERSIDAD POLITÉCNICA DE MADRID
Research Group Robots & Intelligent Machines
Research - Education
Research Assistant

Project: "Design, simulation, control and building of an underwater modular robot for grasp task."

Aug. 2015 – Jan. 2016

Bogotá, Colombia

UNIVERSIDAD MILITAR NUEVA GRANADA
Research Group Davinci
Research - Education
Research Assistant

Completed Task: Project: 'Estudio de la Locomoción Humana a través de integración sensorica (Fuerza – EMG – Visión Artificial – Interface Cerebro Computador)' – 'Study of Human Integration through sensor integration (Force – EMG – Artificial Vision – Brain Interface Computer)'

PUBLICATION LIST

REFEREED JOURNAL/MAGAZINE ARTICLES

- [1] J. S. Cely, R. Saltaren, G. Portilla, O. Yakrangi, and A. Rodriguez-Barroso, 'Experimental and Computational Methodology for the Determination of Hydrodynamic Coefficients Based on Free Decay Test: Application to Conception and Control of Underwater Robots', *Sensors*, vol. 19, no. 17, p. 3631, Jan. 2019.
- [2] G. Portilla, R. Saltarén, A. R. Barroso, J. Cely, and O. Yakrangi, 'A Sensor Based on a Spherical Parallel Mechanism for the Measurement of Fluid Velocity: Experimental Development', *IEEE Access*, vol. 7, pp. 16145–16154, 2019.
- [3] A. Rodriguez-Barroso, R. Saltaren, G. A. Portilla, J. S. Cely, and O. Yakrangi, 'Potential Energy Distribution of Redundant Cable-Driven Robot Applied to Compliant Grippers: Method and Computational Analysis', *Sensors*, vol. 19, no. 15, p. 3403, Jan. 2019.
- [4] G. Portilla, R. Saltarén, F. Montero de Espinosa, A. R. Barroso, J. Cely, and O. Yakrangi, 'Dynamic Walking of a Legged Robot in Underwater Environments', *Sensors*, vol. 19, no. 16, p. 3588, Jan. 2019.
- [5] R. Saltarén, G. Portilla, A. R. Barroso, and J. Cely, 'A Sensor Based on a Spherical Parallel Mechanism for the Measurement of Fluid Velocity: Physical Modelling and Computational Analysis', *Sensors*, vol. 18, no. 9, p. 2867, Sep. 2018.
- [6] A. Rodriguez-Barroso, R. Saltaren, G. A. Portilla, J. S. Cely, and M. Carpio, 'Cable-Driven Parallel Robot with Reconfigurable End Effector Controlled with a Compliant Actuator', *Sensors*, vol. 18, no. 9, p. 2765, Sep. 2018.
- [7] M. Mauledoux, J. S. Cely, and O. F. S. Avilés, 'Mechanical Design of a Self-Balancing Platform for Transporting Purposes', *Appl. Mech. Mater.*, vol. 713–715, pp. 785–788, Jan. 2015.

REFEREED CONFERENCE ARTICLES

- [1] M. A. Carpio-Alemán *et al.*, 'Collision and Tension Analysis of Cable-Driven Parallel Robot for Positioning and Orientation', in *2018 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC)*, 2018, pp. 1–6.
- [2] A. R. Barroso, R. Saltaren, G. Portilla, J. S. Cely, and M. Carpio, 'Smooth Path Planner for Dynamic Simulators Based on Cable-Driven Parallel Robots', in *2018 International Conference on Smart Systems and Technologies (SST)*, 2018, pp. 145–150.
- [3] O. Rubiano, R. Castillo, C. Hurtado, and J. Cely, 'Estrategia para la auto reconfiguración para el sistema robótico modular - MECABOT', presented at the Second International Conference on Advanced Mechatronics, Design, and Manufacturing Technology - AMDM 2014, 2014, pp. 109–114.
- [4] J. S. Cely G. and O. Rubiano, 'Identificación, modelado y control de un motor DC sensado con un tacogenerador', presented at the Second International Conference on Advanced Mechatronics, Design, and Manufacturing Technology - AMDM 2014, 2014, pp. 289–294.

WORK REFERENCES

Eng. Roque Jacinto Saltaren Pazmiño Ph.D.

Universidad Politécnica de Madrid, Madrid, Spain.

Associate Professor

Head of Research Group in Robots and Intelligent Machines.

Researcher of CAR (UPM-CSIC)

E-mail: roquejacinto.saltaren@upm.es

Eng. Mauricio Felipe Mauledoux Monroy Ph.D.

Universidad Militar Nueva Granada, Bogotá, Colombia.

Associate Professor

Mechatronics Engineering

Associate Researcher

Tel: +57650000 ext. 1297 E-mail: mauricio.mauledoux@unimilitar.edu.co

ADDITIONAL COURSES AND INTEREST

Coursework in Quantum Computing

Duration: 2nd - 19th July 2018

Universidad Politecnica de Madrid

Madrid, Spain

Coursework in Free Software for the Enterprise

Duration: 180 hours

Distrital University Francisco Jose de Caldas

Bogotá, Colombia - 2014

Sports and Hobbies: Rugby, Ride Bike