Juan Sebastián Cely Gutiérrez

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

Colombian
Madrid, Spain
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Mechatronic Engineer with master and doctorate studies in underwater robotics. With experience in design and construction of research prototypes, both in the mechanical, electrical and software areas, and good communication with his team. He has knowledge in design software and programming of mobile robots, contributing to new perspectives in design or construction. Looking for a new role in competitive teams in industrial areas or cutting-edge robotics research with the aim of being pioneers worldwide in the development and implementation of technology.

SKILLS

Personal Skills: Persistent, Implicated, Good communicator, Decisive, Team Work.

Professional Skills: Robotics Design, Robotics Control, Design and Development of software/algorithms, Operating System based on Linux, Programming Languages (C, C++, C#, Python, Java, Javascript, PHP), ROS (Robotic Operating System), Matlab, LabView, Solidworks, Inventor, ADAMS MSC Software, AWS-IoT, Siemens TIA-Portal.

WORK EXPERIENCE

Jun. 2021 – Currently
Madrid, Spain

INSTITUTO DE CIENCIAS MATEMATICAS - ICMAT
CSIC - UAM – UC3M - UCM
Researcher

Mar. 2017 – Jun. 2021
Madrid, Spain

UNIVERSIDAD POLITÉCNICA DE MADRID
Research Group Robots & Intelligent Machines
Researcher

Research Projects:

- Development of a modular robot with innate response behaviors DPI2014-57220-C2-1P
  Completed tasks: Design and implementation of an architecture for communication between robotic modular units through the internet.
- Design, construction and control of equipment for modular underwater robots S2018 / NM7-4331 RoboCity 2030-III-CM
  Completed tasks: Construction of a quadrotor drone-shaped robot for underwater tasks. Identification of hydrodynamic parameters through experimental procedures.
- UNDERWATER HYBRID LEGGED ROBOT FOR RESEARCH ON KINEMATICS, DYNAMICS AND CONTROL DURING THE LOCOMOTION ON THE SEABED – LEGSUB PGC2018-095939-B-I00
  Completed tasks: Depth and stabilization controllers of a quadrotor drone-shaped robot for teleoperation and grasping tasks in underwater environments.

Aug. 2015 – Jan. 2016
Bogotá, Colombia

UNIVERSIDAD MILITAR NUEVA GRANADA
Research Group Davinci
Research Assistant

Research Project:

- Study of Human Integration through sensor integration (Force – EMG – Artificial Vision – Brain Interface Computer)
  Completed tasks: Implementation of the sensorial integration necessary for a gait test and its visualization.

STUDIES

2017 - Currently
Madrid - Spain

Ph.D. student in Automation and Robotics
Topic: *Geometric Control of underwater robots*
Universidad Politécnica de Madrid

2016 - 2017
Madrid - Spain

M.Sc. Automation and Robotics
Universidad Politécnica de Madrid

2008 - 2015
Bogotá - Colombia

B.Eng. Mechatronic Engineering
Universidad Militar Nueva Granada
Grade Work with distinction Meritorious

LANGUAGES

English: Advanced (IELTS - B2)
German: Basic – Intermediate (A2)
Spanish: Mother Language

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.

PATENTS

[1] 'Underwater system for aquaculture work' by Saltaren Pazmino Roque Jacinto, **Cely Gutierrez Juan Sebastian**, Rodriguez Barroso Alejandro Portilla Tuesta Gerardo Alejandro, Yakrangi Oz. Spain Patent ES2729816A1, Nov. 6, 2019.

WORK REFERENCES

Eng. Pascual Campoy Cervera Ph.D.
Universidad Politécnica de Madrid, Madrid, Spain.
Full Professor
Head of Research Group in Computer Vision and Aerial Robotics CVAR.
Researcher at CAR (UPM-CSIC)
E-mail: pascual.campoy@upm.es

Eng. Roque Jacinto Saltaren Pazmiño Ph.D.
Universidad Politécnica de Madrid, Madrid, Spain.
Professor
Head of Research Group in Robotics and Intelligent Machine GRMI.
Researcher at CAR (UPM-CSIC)
E-mail: roquejacinto.saltaren@upm.es

Eng. Mauricio Felipe Mauledoux Monroy Ph.D.
Universidad Militar Nueva Granada, Bogotá, Colombia.
Associate Professor
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 Politécnica 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