Domingo **Esteban**

PhD Student · Robotics Researcher

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Summary

PhD student in Bioengineering and Robotics; with an M.Sc. in Robotics and Automation, a B.Sc. in Industrial Engineering and a B.Sc. in Economics and Business.

Carrying out the doctoral research activities in the Department of Advanced Robotics at the Italian Institute of Technology (IIT). My research is focused on machine learning and optimization for generation and control of whole-body skills in humanoid robots.

Research experience both in academia and industry in robot control, robot simulation and machine learning.

Research Interests

Robot Reinforcement Learning	Model-free and model-based algorithms that scale to robotics problems (high-dimensional, continuous states and actions)
Optimal Control	Control with learned models, control with inaccurate models, Stochastic Optimal Control, Non-linear MPC
Humanoids	Whole-body motions with various tasks, multi-contact motion
Imitation Learning	Inverse reinforcement learning, shared human-robot representations

Education

Istituto Italiano di Tecnologia (IIT) — **Università degli Studi di Genova** — *Genoa, Italy*
PhD in Bioengineering and Robotics — Curriculum: Advanced and Humanoid Robotics — *Oct. 2015 - Exp. Apr. 2019*

Universidad Carlos III de Madrid — *Madrid, Spain*
M.Sc. in Robotics and Automation — *Sept. 2012 - July 2014*

Universidad Nacional de San Agustín de Arequipa — *Arequipa, Peru*
B.Sc. in Industrial Engineering — *Apr. 2004 - Apr. 2009*

Universidad Católica San Pablo — *Arequipa, Peru*
B.Sc. in Economics and Business — *Mar. 2006 - Dec. 2010*

Publications

2017 — Delhaisse, B.*; **Esteban, D.***; Rozo, L.; Caldwell, D. *"Transfer Learning of Shared Latent Spaces between Robots with Similar Kinematic Structure"*, IEEE International Joint Conference on Neural Networks (IJCNN) *[Accepted]*

2014 — Martínez, S.; **Esteban, D.**; Jardón-Huete, A.; Balaguer, C. *"Anticipative Humanoid Postural Control System for Locomotive Tasks"*, IEEE-RAS International Conference on Humanoid Robots (Humanoids)

2014 — **Esteban, D.** (2014) *"Whole-body trajectory generation for a humanoid robot"*, Msc thesis, Universidad Carlos III de Madrid, Spain.

Skills

Machine Learning SW	TensorFlow, scikit-learn, GPy, gym
Robotics SW	ROS, YARP, Gazebo, Webots, RobotStudio, OpenCV
Programming	C, C++, Python, MATLAB/Octave, Shell scripting, HTML/CSS
Languages	English, Spanish, French, Italian

Experience

Department of Advanced Robotics (ADVR) — **Istituto Italiano di Tecnologia (IIT)** — *Genoa, Italy*
Affiliated Researcher — *Nov. 2015 - PRESENT*

- Member of the Learning and Interaction group.
- Research focused on robot learning in humanoid robots.

IXION Industry and Aerospace

Madrid, Spain

<small>ROBOTICS ENGINEER</small>

June 2013 - Oct. 2015

- Design, programming and implementation of locomotion, perception, localization, SLAM and motion planning algorithms for the autonomous robots of the company: unmanned multi-rotors vehicles (UAS), unmanned ground vehicles (UGV) and autonomous underwater vehicles (AUV) in ROS.
- Simulation of autonomous mobile robots.
- Programming of navigation algorithms of autopilot system in real-time embedded systems.
- Programming and implementation of Hardware-in-the-loop (HIL) simulation systems for the navigation of autonomous robots.
- Development and wrapping of sensor drivers in real-time embedded systems.

Universidad Carlos III de Madrid

Leganés, Spain

<small>ROBOTICSLAB - HUMANOIDS GROUP RESEACH COLLABORATOR</small>

Mar. 2013 - July 2015

- Design, programming and implementation of whole-body trajectory generation algorithms for TEO, the full-size humanoid robot of the Humanoids group.
- Simulation of a humanoid robot in Gazebo simulator.
- Design and development of ROS nodes in C++ and Python.
- Development of a MATLAB® graphical user interface (GUI) for the generation of whole-body trajectories for TEO humanoid robot.
- Development of shell scripts for GNU/Linux Operating Systems.

Barrick Gold Corporation – Minera Barrick Misquichilca S.A.

Huaraz, Peru

<small>INTERN</small>

Jan. 2011 - Dec. 2011

- Data analysis and use of data mining techniques to obtain information from the databases of the company.
- Employee personal data update and generation of reports in Oracle R12 System.
- Statistics, indicators and documentation update of the Human Resources Quality Management System according to ISO 9001 standard.
- Statistics, indicators and documentation update of the Human Resources Quality Management System according to ISO 9001 standard.

Freeport-McMoRan Copper & Gold Inc. – Sociedad Minera Cerro Verde S.A.

Arequipa, Peru

<small>INTERN</small>

Jan. 2010 - June 2010

- Development of database of contractors with C++ and SQL.
- Development of applications in VBA for Microsoft Excel and Microsoft Access.
- Development of statistics by area, contractors and projects.
- Analysis of occupational health and safety data information.

Professional Development

Robot Programming

Genoa, Italy

<small>ISTITUTO ITALIANO DI TECNOLOGIA</small>

July 2016

REGML: Regularization Methods for Machine Learning

Genoa, Italy

<small>UNIVERSITÀ DEGLI STUDI DI GENOVA</small>

June 2016

Machine Learning: A computational Intelligence Approach

Genoa, Italy

<small>UNIVERSITÀ DEGLI STUDI DI GENOVA</small>

June 2016

Control of Mobile Robots

Coursera (MOOC)

<small>GEORGIA INSTITUTE OF TECHNOLOGY</small>

Mar. 2014

Autonomous Mobile Robots - AMRx

edX (MOOC)

<small>ETH ZURICH (ETHx)</small>

Feb 2014

Machine Learning

Coursera (MOOC)

<small>STANDFORD UNIVERSITY</small>

July 2013

An Introduction to Interactive Programming in Python

Coursera (MOOC)

<small>RICE UNIVERSITY</small>

June 2013