# LUCÍA GÜITTA LÓPEZ

Industrial Engineer - Ph.D. Candidate and Research Assistant

Santa Cruz de Marcenado 25, 28015 Madrid, Spain

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## PROFILE

As an Industrial Engineer, I am particularly interested in **Deep Reinforcement Learning applied to Robotics**. I aspire to earn a Ph.D. in this field while leveraging my expertise as research assistant in Reinforcement and Deep Reinforcement Learning, Computer Vision, Transfer Learning Techniques, and Robotics. My **leadership** and **teamwork** experience have sharpened my **problem-solving** and **hard-working nature**, as well as my **work ethics** with a focus on **perseverance** and **determination**.

## EXPERIENCE

### Research

Feb 2023 - Present

**Industry 4.0 Observatory associate**

*Madrid (Spain).*

Member of the Industry 4.0 Observatory (*Observatorio de la Industria 4.0*) whose objective is to provide a permanent framework for debate, training, information dissemination, research and opinion on Industry 4.0.

Sep 2021 - Present

**Ph.D. Candidate in Engineering Systems Modeling**

*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Within the field of deep reinforcement learning, I am focusing on applying and designing transfer learning techniques to conceive an efficient solution to bridge the reality gap. The case studies are, for now, different robotic arms

Title: "Efficiently transferring deep reinforcement learning experience to industrial assets".

Supervisors: Prof. Álvaro Jesús López López, Ph.D., and Prof. Jaime Boal Martín-Larrauri, Ph.D.

Nov 2019 - Present

**Research Assistant**

*Institute for Research in Technology (IIT), ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Belonging to the Smart Systems department and funded by the Chair in Smart Industry.

Research areas: Deep Learning, Computer Vision, Reinforcement and Deep Reinforcement Learning, Robotics, and Industry 4.0.

May 2016 – Jun 2020

**Project Co-Founder**

*Eiximenis – Sustainable Street Lighting.*

Project whose aim was to bring sustainability to the streetlights, reducing its consumption and light pollution according to the street occupation. My work was focused on the software and hardware design.

May 2018 – Aug 2018

**Visiting Student**

*Institute for Research in Technology (IIT), ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Scholarship granted by the Chair in Smart Industry.

Design and develop an algorithm for failure detection prediction in transformers according to internal and external variables such as oil temperature, current faults, etc.

Nov 2015 – Jun 2016

**Visiting Student**

*Institute for Research in Technology (IIT), ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Scholarship granted by the Smart Systems Department.

Prototyping, design and 3D printing of cases for house automation smart devices.

### Teaching

Jan 2021 - Present

**Lab Instructor**

*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Lab instructor of the Industrial Automation Master's Course taught during the first year of the Official Master's Degree in Industrial Engineering.

Feb 2018 – Jun 2018

**Master's Thesis Project Co-supervisor**

*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Co-supervise several projects mainly on Deep Learning and Deep Reinforcement Learning.

Feb 2018 – Jun 2018

**Undergraduate Teaching Assistant**

*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Teaching assistant for the Electronic Circuits laboratory of the ICAI-SAPIENS exchange student program.

## EDUCATION

Sep 2021 - Present
**Ph.D. Candidate in Engineering Systems Modeling**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*
Title: "Efficiently transferring deep reinforcement learning experience to industrial assets".
Supervisors: Prof. Álvaro Jesús López López, Ph.D., and Prof. Jaime Boal Martín-Larrauri, Ph.D.

Aug 2023 – Oct 2023
**(enrolled) Deep Multi-Task and Meta Learning (Artificial Intelligence Professional Program)**
*Stanford University School of Engineering (online).*

Jul 2022 – Jul 2022
**Deep Reinforcement Learning (Summer School Program)**
*Vrije Universiteit Amsterdam (VU Amsterdam).*

Feb 2022 – May 2022
**Reinforcement Learning Course (Artificial Intelligence Professional Program)**
*Stanford University School of Engineering (online).*

Sep 2017 – Jun 2019
**M.S. degree in Industrial Engineering**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*
Master's thesis: "Regulation lighting system on public thoroughfares and point by point remote management" (Grade: 10/10).

Sep 2017 – Jun 2019
**M.S. degree in Smart Industry**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*
Master's thesis: "Regulation lighting system on public thoroughfares and point by point remote management" (Grade: 10/10).

Sep 2013 – Jun 2017
**B.S. degree in Electromechanical Engineering**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*
Final project: "Camera orientation control with virtual reality glasses" (Grade: 10/10).

Sep 2013 – Jun 2017
**Diploma in Professional Skills**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Sep 2013 – Jun 2017
**Diploma in Communication Skills and Studies in a Foreign Language**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

## PUBLICATIONS

Güitta-López, L., Boal, J. & López-López, Á.J. "Learning more with the same effort: how randomization improves the robustness of a robotic deep reinforcement learning agent". *Applied Intelligence* (2022). https://doi.org/10.1007/s10489-022-04227-3

Güitta-López, L., Boal, J. & López-López, Á.J. "Evaluating the Perception, Understanding, and Forgetting of Progressive Neural Networks: A Quantitative and Qualitative Analysis". *Neural Networks* (2023) **[Under review].**
Available at SSRN: https://ssrn.com/abstract=4342081 or http://dx.doi.org/10.2139/ssrn.4342081

## MERITS AND AWARDS

Oct 2022
**First place in the Barcelona Triathlon Super-Sprint distance**
*Barcelona (Spain).*

Nov 2021
**Co-Supervisor of the Best Master's Thesis Award**
*ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*
Award sponsored by the "Colegio Nacional de Ingenieros de ICAI".
Title: "Improvement of alarm and video surveillance systems by incorporating audio analysis".

Sep 2021 – Sep 2023
**Research Assistant Representative, Ph.D. Program Delegate and Delegate of the Comillas International Doctorate School**
*Institute for Research in Technology (IIT), ICAI School of Engineering, Comillas Pontifical University, Madrid (Spain).*

Oct 2017
**Finalist Project of the Indra Ventures 4 Gran Canaria contest**
*Canary Islands (Spain).*
Award sponsored by Indra Sistemas S.A. and given to our Sustainable Street Lighting project.

Sep 2013
**Academic Excellence Scholarship**
*Madrid (Spain).*
Scholarship sponsored by the Community of Madrid.

## LANGUAGES

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|---|---|
| Spanish | Native |
| English | Fluent<br>Certificate in Cambridge English: Advanced (CAE – C1), Cambridge University, June 2017 |

## SKILLS

### Digital and programming skills

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|---|---|---|---|
| **Operating Systems** | Ubuntu<br>Windows<br>ROS<br>Mac OS | **Software development** | Git |
| **Office Automation** | LaTeX<br>Microsoft Office 365<br>LibreOffice | **Platforms** | Raspberry Pi<br>NVIDIA Jetson<br>Arduino |
| **Programming languages** | Python<br>R<br>C / C++<br>RAPID<br>MATLAB / Simulink<br>PLC programming languages | **Machine learning frameworks** | PyTorch<br>BoTorch |
| | | **Virtual environments** | MuJoCo<br>RobotStudio (ABB)<br>CoppeliaSim (V-REP) |
| | | **CAD** | Sold Edge<br>SolidWorks |

### Soft skills

Leadership Team-work oriented Analytical skills Critical thinking Committed Decision-making