

# LUCAS COELHO FIGUEIREDO

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## EDUCATION

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<b>University of São Paulo</b> MBA in Project Management	05/2022 - 11/2023
<b>Federal University of Minas Gerais</b> MSc in Electrical Engineering, emphasis in Control and Robotics Thesis: Human-robot swarm interaction on multi-robot coverage control with Virtual Reality	08/2015 - 06/2018 Belo Horizonte, Brazil
<b>Udacity</b> Self-driving car Engineer Nanodegree	01/2019 - 06/2019
<b>Rockstart Accelerator</b> Startup Acceleration Program, intensive course on entrepreneurship	08/2016 - 08/2016 Amsterdam, The Netherlands
<b>Federal University of Minas Gerais</b> Bachelor in Control and Automation Engineering	03/2010 - 07/2015 Belo Horizonte, Brazil
<b>The University of Texas at Austin</b> Exchange Program in Electrical Engineering and Computer Science	08/2013 - 05/2014 Austin, USA
<b>Federal Center of Technological Education</b> High School and Technical Program in Electronics	05/2007 - 12/2009 Belo Horizonte, Brazil

## EXPERIENCE

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<b>Realtime Robotics Inc.</b> Senior Software Engineer	12/2022 - Today Boston, USA (Remote)
<ul style="list-style-type: none"><li>· C++ engineer on the RapidPlan Create products</li><li>· Implemented novel motion planning algorithms based on OMPL implementations</li><li>· Scrum Master of the team</li></ul>	
<b>Hexagon Mining</b> Specialist Software Engineer III - Autonomous Vehicles	11/2017 - 11/2022 Belo Horizonte, Brazil
<ul style="list-style-type: none"><li>· Technical lead on the fleet management system for autonomous vehicles, helping the team designing highly reliable machine-to-machine communication protocols using DDS in C++</li><li>· Responsible for the robotics framework in C++ for Hexagon Mining autonomous solution</li><li>· Great experience integrating complex products into Hexagon's autonomous solutions, including a high precision GPS-based parking assist, a fleet management system for mining, and a collision-avoidance system</li><li>· Implemented highly reliable machine-to-machine communication protocols using DDS in C++ (RTI and OpenSplice) and integrated with three different OEMs</li><li>· Technical mentorship of other eight engineers in the team</li></ul>	
<b>Newatt Energy Systems</b> Co-Founder and CTO	09/2015 - 08/2017 Belo Horizonte, Brazil, and Amsterdam, The Netherlands
<ul style="list-style-type: none"><li>· Designed embedded hardware and firmware for STM32 microcontrollers in a wireless energy sensor, using C++ and Python</li><li>· Responsible for the technical decisions and relationship with partners and investors</li><li>· Managed the team for the implementation of the cloud architecture for energy data processing in Node.js and Python on AWS. Implemented data collection using MQTT</li><li>· Familiarity with startup methodology and agile development</li></ul>	
<b>Multi-robot Systems Laboratory - Boston University</b> Summer Research Intern: 400 hours	05/2014 - 08/2014 Boston, USA
<ul style="list-style-type: none"><li>· Created algorithms for multi-robot systems applied in area coverage and autonomous exploration</li><li>· Developed embedded software for <i>m3pi</i> robots in C++</li><li>· Published academic results at ICRA 2015 and IJRR 2017</li></ul>	
<b>Computation and Robotics Lab - UFMG</b> Undergraduate Research Assistant: 2880 hours	10/2010 - 08/2013 Belo Horizonte, Brazil
<ul style="list-style-type: none"><li>· Developed algorithms for multi-robot coverage and UAV trajectory tracking using C++, ROS, and MATLAB in a Linux environment</li><li>· Large experience in ROS, working on it since Diamondback version (2011) and becoming a reference on ROS for labmates and professors</li></ul>	

## AWARDS

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### Hexagon Mining Hackathon

2022

*Winner*

Belo Horizonte, Brazil

- Integrated 3 different Hexagon Mining products into a simulator with virtual reality. Got a Xbox Series X as a prize.

### Sabiá Laranjeira Award

2017

*Winner*

São Paulo, Brazil

- Awarded by Leadership with Values Institute for the work on Newatt Energy Systems.

### Rockstart Smart Energy Program

2016

*Finalist*

Amsterdam, The Netherlands

- Awarded with a 6-month acceleration program in Amsterdam and EUR 75k in investment.

### Brazil Scientific Mobility Program

08/2013 - 08/2014

*Awardee*

Austin, USA

- Selected for a grant that covered a year of studies at The University of Texas at Austin, including tuitions, housing, meals and travel expenses.

## PUBLICATIONS

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### Brazilian Automatics Congress

08/2018

- L. C. Figueiredo, I. L. Carvalho, L. C. A. Pimenta. “Voronoi Multi-Robot Coverage Control in Non-Convex Environments with Human Interaction in Virtual Reality”
- Experimental results at <https://www.youtube.com/watch?v=cpniwb6UrF8>

### International Journal of Robotics Research (IJRR)

02/2017

- A. Pierson, L. C. Figueiredo, L. C. A. Pimenta, and M. Schwager. “Adapting to Sensing and Actuation Variations in Multi-Robot Coverage”

### IEEE International Conference on Robotics and Automation (ICRA)

05/2015

- A. Pierson, L. C. Figueiredo, L. C. A. Pimenta, and M. Schwager. “Adapting to Performance Variations in Multi-Robot Coverage”
- Experimental results at <https://www.youtube.com/watch?v=qyYt3frZ7aw>

## SKILLS

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<b>Programming</b>	Proficient: C++, Python, ROS, RTI DDS, Git, Ubuntu Average: Android, Java, OpenSplice DDS, C#, CMake, Docker, OpenCV Beginner: Node.js, MATLAB, SQL, PCL, SQL, Keras
<b>Office</b>	Word, PowerPoint, Excel
<b>Managerial</b>	Scrum, Agile, Lean Startup
<b>Other</b>	LaTeX, UML
<b>English</b>	Fluent
<b>Portuguese</b>	Native
<b>Hobbies</b>	Photography, scuba diving, cooking, mountain biking, electronics projects