

# LUCAS COELHO FIGUEIREDO

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## EDUCATION

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

## EXPERIENCE

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| <b>Hexagon Mining</b><br>Specialist Software Engineer III - Autonomous Vehicles  | 11/2017 - Today<br>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 four engineers in the team</li></ul> |   |
| <b>Newatt Energy Systems</b><br>Co-Founder and CTO   | 09/2015 - 08/2017<br>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><br>Summer Research Intern: 400 hours   | 05/2014 - 08/2014<br>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><br>Undergraduate Research Assistant: 2880 hours   | 10/2010 - 08/2013<br>Belo Horizonte, Brazil                                 |

- Developed algorithms for multi-robot coverage and UAV trajectory tracking using C++, ROS, and MATLAB in a Linux environment
- Large experience in ROS, working on it since Diamondback version (2011) and becoming a reference on ROS for labmates and professors
- Designed, assembled, and customized five Turtlebots for indoor experiments
- Mapped the whole engineering department with gmapping SLAM using Kinect and LiDAR

## AWARDS, CONFERENCES & GRANTS

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**ROSCon** 10/31/2019 - 01/11/2019  
*Participant* Macau

- Participated in the largest ROS community event, gaining insight of the market, best practices, and developed networking

**Rockstart Smart Energy Program** 02/2016 - 08/2016  
*Selected entrepreneur* Amsterdam, The Netherlands

- Selected as the top 10 among more than 500 startups across the world
- Received € 70.000 in investment from a Dutch accelerator (Rockstart)

**Brazil Scientific Mobility Program** 08/2013 - 08/2014  
*Awardee* Austin, USA

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

## 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<br>Average: Android, Java, OpenSplice DDS, C#, CMake, Docker, OpenCV<br>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, diving, mountain biking, electronics projects   |