

# LUCAS MATÍAS BARRERA

## PERSONAL INFORMATION

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LOCATION: Turín, Italy  
E-MAIL: [lucasmatiasbarrera@gmail.com](mailto:lucasmatiasbarrera@gmail.com)  
LINKEDIN: <https://www.linkedin.com/in/lucas-matias-barrera/>

## ABOUT

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I am an Electronics Engineer with over 14 years of experience in the industry, including almost 10 years in the aerospace sector. I'm a very analytical professional, capable of analyzing highly complex scenarios with great attention to detail and a strong market orientation, an aptitude I learned during my last 5 years of work experience.

Over the past four years, I have taken courses in leadership and communication to improve my soft skills, which has allowed me to communicate and lead more effectively and assertively.

I am a very curious person, which is why I began studying philosophy. I am passionate about contemplating the most complex and profound problems that humanity has faced and continues to face. I also thoroughly enjoy art and I'm currently working on my first sculpture that combines geometry, computer science, and plastic art.

## WORK EXPERIENCE

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2024-PRESENT	<b>FREELANCE</b> <i>System Engineering Consultant</i> System Engineering for aerospace project. Main activities include documentation generation and testing design.  <i>Main goal: Developed a custom programming language to document and analyze automation routines.</i>
2020-2024	<b>VENG</b> <i>Satellite information based Products Development Manager</i> Project management and AI development team (4 people) technical leading. Main activities include leading meetings with partners and customers, and products roadmap and commercial strategies definition.  <i>Main goal: Established a 4 people team from the ground up by defining team goals, conducting personnel searches and selecting key roles.</i>
2018-2020	<b>VENG</b> <i>Business Development</i> SAR Imagery industry research, business models and commercial strategies definition, and satellite information based products development roadmap definition.  <i>Main goal: Together with two coworkers, started a new business unit up within the company.</i>
2016-2018	<b>VENG</b> <i>Senior Software Developer</i> Software development for Tronador Launch Vehicle project.  <i>Main goal: Developed an entire software system for managing mechanical, thermal and electrical interfaces. The software includes features such as data version control and tracking, reports generation (Electrical Harness Manufacturing Sheet, Functional Interfaces and Mass Budget Reports), electrical connections verification, and user profile management among others.</i>

2015-2018	<b>VENG</b> <b>Assistant System Engineer for Tronador Launch Vehicle</b> Support in software development and system modeling for project Systems Engineering team.  <i>Main goal: Deployed a project model for MBSE, and developed an information flow diagram for the company's software tools, aimed to create an Enterprise Ecosystem for SE.</i>
2014-2017	<b>VENG</b> <b>Avionics engineer and IVVQ for VEx5A test Launch Vehicle</b> Responsible for VEx5A telemetry subsystem, support for EI&T operations, and hardware and software development for avionics and EI&T.  <i>Main goal: Developed an Electrical GSE (SW&amp;HW) for test and verification of VEx5A's electrical interfaces.</i>
2011-2014	<b>VITKE</b> <b>Software Developer</b> Software development and system design.  <i>Main goal: Designed an end-to-end software system to track the position of city buses and to manage tickets selling.</i>
2013-2014	<b>FREELANCE</b> <b>Embedded Hardware and Software Developer</b> Embedded system definition, design and manufacturing.  <i>Main goal: Developed an entire RFID door lock software and hardware.</i>
2009-2011	<b>GRUPO SENSOR</b> <b>Software Developer</b> Embedded software developer and system designer applied to precision agriculture HW&SW products.  <i>Main goal: Developed a Sprayer Automatic Boom Section Control software, becoming this one of the most sold products of the company.</i>

## EDUCATION

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2023-2024	Artificial Intelligence Specialization UNIVERSIDAD DE BUENOS AIRES, BUENOS AIRES
2021-2022	Neuro-Linguistic Programming (NLP) Practitioner Diplome PNL BUENOS AIRES, BUENOS AIRES
2022-2022	Business Development Diplome CAME BUSINESS SCHOOL, BUENOS AIRES
2020-2024	B.A. Philosophy UNIVERSIDAD NACIONAL DE 3 DE FEBRERO, BUENOS AIRES
2020-2020	Computational Social Science Specialization UC DAVIS, REMOTE
2005-2011	B.Sc. Electronic Engineer UNIVERSIDAD NACIONAL DE ROSARIO, ROSARIO
2005-2011	A.S. Computer Systems Analysis ESCUELA SUPERIOR DE COMERCIO N° 49, ROSARIO
2001-2005	A.S. Electromechanical Instrumentation and Maintenance E.E.T. N°482, TOTORAS

## PERSONAL PROJECTS

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- 2023 | **ELECTRICAL HARNESS CONNECTIONS CHECKER**  
*Embedded Electronics Engineer*  
Electronic measurement device with 37x8 analog channels plus a milliohmmeter, with SCPI commands interface that can be used, among other applications, to validate and qualify electrical harness. I designed two different PCB boards (one for analog multiplexing and the other for resistance measurement and system control), developed the device's firmware and software, and designed and 3D printed the device's cabinet using a rackable board concept.  
  
Tools and technologies: KiCAD EDA, Fusion360 CAD, Arduino IDE (C++), Visual Studio Code (Python)
- 2023 | **MECHANICAL TOPOLOGY OPTIMIZATION**  
*Software developer*  
Python software to perform topological optimization of a mechanical piece. I used Code Aster (a FEM solver) to calculate loads and deformations of the piece, and Salome-Meca to modify the piece topology considering the simulation results.  
  
Tools and technologies: Code Aster FEM, Salome-Meca, Python

## COURSES

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- 2023 | Project management using Agile (Google, Coursera)  
2022 | Level B2 English Courses (British Council)  
2022 | Spanish Oratory (Galimi&Alcón, Buenos Aires)  
2020 | Systems Engineering (Comisión Nacional de Actividades Espaciales, Buenos Aires)  
2020 | Communication, negotiation and leadership (AC Coaching, Buenos Aires)  
2019 | Electronics Systems Reliability (Comisión Nacional de Actividades Espaciales, Buenos Aires)  
2019 | Space Systems Engineering (Comisión Nacional de Actividades Espaciales, Buenos Aires)  
2019 | Model-Based Systems Engineering (The State University of New York, Coursera)  
2019 | Artificial Intelligence (Digital House, Buenos Aires)  
2019 | Complex Systems Theory: An Introduction (Systems Academy, Udemy)  
2019 | Neural Networks and Deep Learning (DeepLearning.AI, Coursera)  
2019 | Thinking Complexity (Toulouse Business School, iversity)  
2018 | Project Management (Universidad Tecnológica Nacional, Buenos Aires)  
2018 | Introduction to Finite Element Method (Universidad de Buenos Aires, Buenos Aires)  
2017 | Space Systems (Universidad de Buenos Aires, Buenos Aires)  
2016 | 32-bits ARM based Embedded Systems modeling (UNLP, La Plata)  
2014 | Digital Image Processing (Universidad Tecnológica Nacional, Buenos Aires)  
2014 | Robotics (Universidad Tecnológica Nacional, Buenos Aires)  
2013 | Android Apps Development (Universidad Tecnológica Nacional, Buenos Aires)  
2010 | Network Security (Universidad Nacional de Rosario & CISCO, Rosario)  
2010 | Real Time OS for microcontrollers (Universidad Nacional de Rosario, Rosario)

## TEACHING

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- 2018-2019 | **UNIVERSIDAD NACIONAL DE 3 DE FEBRERO**  
Electricity and magnetism course for Sound Engineering career  
*Associate Professor*
- 2014-2016 | **UNIVERSIDAD TECNOLÓGICA NACIONAL**  
Robotics course for Electronic Engineering career  
*Ad honorem Associate Professor*

## AWARDS

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2023 Project selected for the Universidad Nacional del Litoral's Incubation Program  
2019 Scholarship: Artificial Intelligence to power the country, Fundación Telefónica  
2017 Best Projects Selection, Argentinean National Innovation Contest (INNOVAR)  
2013 Best Projects Selection, Argentinean National Innovation Contest (INNOVAR)  
2000 Best Friend, Rotary Club Argentina

## LANGUAGES

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SPANISH: Native  
ENGLISH: Proficient  
ITALIAN: Beginner

## SOFTWARE AND TOOLS

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Advanced: Python, .NET (C#, VB), C, MySQL, FreeCAD/Fusion360, KiCAD/Altium Designer,  
MS Office Tools (Visio, Excel, Word), LTSpice  
Middle: MATLAB, Simulink,  $\text{\LaTeX}$ , Enterprise Architect

## INTERESTS AND EXTRACURRICULAR ACTIVITIES

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3D Manufacturing, Sculpting, Literature, Ethics applied to AI, Music, Complex Systems, Digital Art

## REFERENCES

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Adrián Unger: Senior Systems Engineer, Satellite Based Solutions Office at VENG  
+54 9 11 2517-6412, [aunger@veng.com.ar](mailto:aunger@veng.com.ar)  
Natalia Varela: Manager of Satellite Information Based Solutions Office at VENG  
+54 9 11 4031-9801, [nvarela@veng.com.ar](mailto:nvarela@veng.com.ar)