

# Scientific and Academic Curriculum

Luca Ghislotti

Department of Engineering and Applied Sciences  
University of Bergamo

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## Personal Details

**Forename and Surname:** Luca Ghislotti  
**Place and Date of Birth:** Treviglio (BG), 03/02/1998  
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**Academic Web Page:** <https://didattica-rubrica.unibg.it>

## Academic Education and Training

**Doctor of Philosophy (Ph.D.) - Microelectronics for High Energy Physics**

Università degli Studi di Bergamo, Bergamo (2022 - 2025)

**Master of Science (M.Sc.) - Computer Engineering (LM-32)**

Università degli Studi di Bergamo, Bergamo (2020 - 2022)

**Thesis:** “Characterisation of the readout electronics of the Si(Li) tracker for the first flight of the GAPS experiment”  
**Supervisor:** Prof. Massimo Manghisoni

**Keywords:** GAPS, Dark Matter, Spectrometer, Si(Li), ASIC  
**Final Grade:** 110/110 cum laude

## **Bachelor of Science (B.Sc.) - Computer Engineering (LM-8)**

Università degli Studi di Bergamo, Bergamo (2017 - 2020)

**Thesis:** “Data Anonymization Techniques: Implementation in the Apache Spark Environment”  
**Supervisor:** Prof. Stefano Paraboschi  
**Keywords:** Data Anonymization, Apache Spark, Apache Hadoop, Privacy, Computer Security  
**Final Grade:** 107/110

## **Work Experience**

### **Intern at PRSE Srl**

*Internship project regarding the development of a self-driving AV*  
Bergamo, Italy  
February 2022 - March 2022

### **Shareholder of Efficient Farm Engineering Srl**

*Computer Engineer at an innovative startup operating in the agricultural sector*  
Ghisalba (BG), Italy  
December 2019 - Ongoing

### **Shareholder of Società Agricola Le Campagnole Srl**

*Manager and IT Consultant of an organic farm with production and sale of dairy products*  
Cologno al Serio (BG), Italy  
January 2018 - October 2019

## **Scholarships and Certificates**

### **Ph.D. Scholarship**

Dottorato di Ricerca in INGEGNERIA E SCIENZE APPLICATE (XXXVIII ciclo)  
Università degli Studi di Bergamo, Bergamo  
*Years:* 2022 - 2025

## TOP 10 Student Program

Università degli Studi di Bergamo, Bergamo

*Years:* 2017 - 2018, 2020 - 2021, 2021 - 2022

*Fee exemption award issued by Università degli Studi di Bergamo to best students*

## Io e Lode - Studenti Eccellenti Scuole Bergamasche

Confindustria Bergamo, Bergamo

*Years:* 2013 - 2014, 2014 - 2015, 2015 - 2016, 2016 - 2017

*Award issued by Confindustria Bergamo to best upper secondary school students*

## FCE (B2 First)

Cambridge Assessment English, Cambridge (2017)

## Memberships

### INFN Memeber

Istituto Nazionale di Fisica Nucleare, Pavia

Member of INFN CSN2 group as Technological Ph.D., section of Pavia.

### IEEE Graduate Student Member

Institute of Electrical and Electronics Engineers

Membership number 97046986

### ORCID Account

ORCID ID <https://orcid.org/0000-0002-7084-5979>

## Language skills

**Italian:** Mother tongue

**English:** Fluent (C1)

**Spanish:** Intermediate (B2)

## Computer skills

**Advanced knowledge:** C/C++, Java, Python, L<sup>A</sup>T<sub>E</sub>X, MATLAB, JavaScript, SQL, Scala, HTML, PHP, Linux, GIT

**Intermediate knowledge:** LTSpice, B&R Automation Studio (ST, SFC, Ladder), MongoDB, Apache Spark, REST API, Autodesk AutoCAD, Autodesk Fusion

**Basic Knowledge:** XPath, XQuery, Android Apps Development, Assembly, Simulink, Autodesk Eagle

## Publications and Presentations Co-Authorships

V. RE, L. GHISLOTTI, P. LAZZARONI, M. MANGHISONI, E. RICEPUTI, L. RATTI, M. BOEZIO, G. ZAMPA, L. FABRIS, “*A mixed-signal processor for X-ray spectrometry and tracking in the GAPS experiment*”, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, <https://doi.org/10.1016/J.NIMA.2022.167617>.

V. RE, L. GHISLOTTI, P. LAZZARONI, M. MANGHISONI, E. RICEPUTI, L. RATTI, M. BOEZIO, G. ZAMPA, L. FABRIS, “*A 32-channels mixed-signal processor for the tracking system of the GAPS experiment*”, 15th Pisa Meeting on Advanced Detectors, La Biodola, Isola d’Elba, May 27, 2022, <https://agenda.infn.it/event/22092/contributions/167321>.

E. RICEPUTI, M. BOEZIO, L. FABRIS, L. GHISLOTTI, P. LAZZARONI, M. MANGHISONI, L. RATTI, V. RE, G. ZAMBPA, “*The 32 analog channels readout for the long flight GAPS balloon experiment tracking system*”, SIE 2022 - Pizzo (VV), 7/9 September 2022, <https://events.dimes.unical.it/sie2022>.

## Scientific activity

The scientific activity and research interest of Luca Ghislotti fall mainly in the design of low-noise, low-power analogue front-end integrated circuit for semiconductor detectors readout in high energy physics and their characterisation.

The research activity to date encompasses the following:

- 1. Characterisation of the readout electronics of the Si(Li) tracker of the GAPS experiment**

The research work consists in the validation of the flight items of the Si(Li) tracker of the General AntiParticle Spectrometer (GAPS) experiment scheduled for late 2023 from the McMurdo Station in Antarctica. The characterisation work is aimed at the validation of the readout electronics of the tracker and its calibration, with great concern for ultra-low noise performance and high energy particles detection accuracy.

## **2. Design of a 65 nm CMOS readout ASIC for the second flight of the Si(Li) tracker of the GAPS experiment**

The research work is focused on the design of an improved version of the Application Specific Integrated Circuit (ASIC) currently employed for the readout of the Si(Li) detectors of the GAPS tracker by moving from the current 180 nm CMOS technology in which the integrated circuit has been designed, to a more scaled 65 nm CMOS technology. This new chip will be used during the second long duration balloon flight experiment that will take off from the McMurdo Station in Antarctica at the end of 2025.

In the context of the GAPS experiment, Luca Ghislotti visited the Space Sciences Laboratory (SSL) at the University of California, Berkeley (CA) in December 2022. During this time, Luca Ghislotti contributed to the assembly and calibration of the tracker.

## **Academic activity**

### **Teaching activity**

Starting from 2022, Luca Ghislotti has carried out teaching assistant activities for Engineering and Management for Health degree at the University of Bergamo. A detailed list of the aforementioned activities, with the corresponding academic year, follows:

- **2022 - 2023:** Teaching assistant for the course “Biomedical Sensors” (6 CFU).

## **Interests and Activities**

Electronics, Linux, Hi-Fi, Audio Power Amplifier Design, Film Photography, Aerospace

## **Volunteer Experience**

Contributor at Informatici Senza Frontiere ONLUS (2018 - Ongoing)

Pursuant to art. 46 and 47 of Presidential Decree 445/2000, I declare that the information included in my CV is true, being aware of the possible application of Article 76 of the same article in the event of a false declaration.

Pursuant to the Legislative Decree (D.Lgs.) no. 196/2003 and the Regulation (UE) 2016/679, the undersigned declares to be well informed that his/her personal data being collected here will be treated, also in electronic form, exclusively for the scope of the procedure related to this declaration and authorizes the collection of personal data for the fulfilment of this

procedure.

Bergamo, 09/01/2023

*Luca Ghislotti*