

# Ilenia Carboni

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[in LinkedIn](#) | [GitHub](#) | [Website](#)

## EDUCATION

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- **Master's Degree in Artificial Intelligence** 09/2022 - 03/2025  
*Alma Mater Studiorum - University of Bologna* Bologna, Italy
  - **Final Grade:** 110/110 cum laude (GPA: 28.96/30.00)
  - **Thesis:** "Federated Neural Radiance Fields on a Swarm of Miniaturized Drones"
  - **Relevant Coursework:** Image Processing and Computer Vision, Machine Learning for Computer Vision, Architecture and Platforms for Artificial Intelligence, Autonomous and Adaptive Systems
- **Bachelor's Degree in Computer Engineering** 09/2019 - 10/2022  
*Alma Mater Studiorum - University of Bologna* Bologna, Italy
  - **Final Grade:** 110/110 cum laude (GPA: 29.00/30.00)
  - **Thesis:** "Creazione di un dataset tramite Smart Glasses per l'addestramento di Neural Radiance Fields" (Creation of a dataset using Smart Glasses for training NeRF)
- **Student at Camplus College of Merit** 09/2019 - 03/2025  
*Camplus College Bononia (MUR-recognized, CCUM) - Residential College* Bologna, Italy
  - Selective residential college program parallel to university studies, renewed annually based on academic merit.
  - Interdisciplinary training in STEM, humanities, and soft skills; active member of the Engineering and STEM Club, attending seminars by researchers various academic and industry institutions.
  - Leadership: Senior Technical Lead and Director at Plus Radio Bologna (2019–2022).
  - Recipient of partial merit-based scholarship throughout enrollment.
- **Scientific High School, Applied Sciences** 09/2014 - 07/2019  
*Liceo Scientifico e Musicale "G.Marconi"* Pesaro, Italy
  - **Final Grade:** 100/100 cum laude
  - **Extracurriculars:** Theater Club member; Writer for school magazine "La Scintilla"

## RESEARCH EXPERIENCE AND PROJECTS

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- **Postgraduate AI Research Fellow** 05/2025 - 12/2025  
*Alma Mater Studiorum - University of Bologna* Bologna, Italy
  - Awarded a 12-month research fellowship by the Alma Mater Research Institute for Human-Centered Artificial Intelligence on "Federated Embedded Neural Radiance Fields on a Swarm of Miniaturized Robots".
- **Master Thesis Intern** 10/2024 - 03/2025  
*Dalle Molle Institute for Artificial Intelligence (IDSIA) & University of Bologna* Lugano, Switzerland & Bologna, Italy
  - Conducted a 6-month internship in preparation for Master's Thesis: "Federated Neural Radiance Fields on a Swarm of Miniaturized Drones", in collaboration with the Nanorobotics Research Group at IDSIA, including a 3-month research visit to Lugano.
  - Key Contributions:
    - \* Analyzed and profiled Instant-NGP to assess memory and computational costs
    - \* Optimized hyperparameters for deployment on nano-drones with GAP9 SoC
    - \* Designed and evaluated a federated learning scheme
  - Awarded a **merit-based scholarship** by the University of Bologna for the 3-month research period abroad.
- **Samsung Innovation Campus @ Camplus College** 10/2023 - 12/2023  
*Samsung Electronics Italy, Milan & Camplus National Engineering Club* Remote, Final event in Milan, Italy
  - Course designed by Samsung Electronics Italy, focused on AI, IoT and soft skills for digital transformation.
  - Developed a final group project on the prompt "A multi-device experience, aiming to favor social and ecological sustainability". Won **Best Team Project 2023** for *Ashly*, an AI-enabled automatic pill dispenser improving adherence to therapeutic plans.
- **Bachelor Thesis Intern** 04/2022 - 06/2022  
*CVLab, Alma Mater Studiorum - University of Bologna* Bologna, Italy
  - Setup Ray-Ban Stories smart glasses and implemented methods for information extraction.
  - Acquired a dataset of common hand-held objects using the glasses.
  - Developed a neural pipeline for data pre-processing to train Neural Radiance Fields.

## TEACHING EXPERIENCE

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- **Teaching Assistant Support - "Architectures for Artificial Intelligence"** 09/2025 - Present  
*Alma Mater Studiorum - University of Bologna* Bologna, Italy
  - Collaborated to prepare laboratory sessions and setups for Master's courses in Electronic Engineering and Artificial Intelligence.
  - Assist students during sessions by answering questions and guiding them through practical exercises
- **Tutor - Engineering and Computer Science Exam Preparation** 02/2024 - 07/2024  
*Camplus College Bononia* Bologna, Italy
  - Held one-on-one sessions and prepared study materials for Computer Science and Engineering exams at undergraduate levels.
  - Supported coursework in:
    1. **Calculus I** (First-Year Bachelor's Degree, Electrical Engineering);
    2. **Database and Information Systems** (Third-Year Bachelor's Degree, Management Engineering).

## SCHOLARSHIPS

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- **A.Y. 2023/2024** - Scholarship for Master's Thesis Abroad, Computer Science and Engineering Department, University of Bologna
- **A.Y. 2020/2021** - Merit-based Study Award for Outstanding Students, University of Bologna

## PUBLICATIONS LIST

C=CONFERENCE, J=JOURNAL, S=SUBMITTED, T=THESIS

- [C.1] **Carboni Ilenia\***, Cereda Elia\*, Lamberti Lorenzo\*, Malpetti Daniele, Conti Francesco, Palossi Daniele.  
*Tiny-DroNeRF: Tiny Neural Radiance Fields aboard Federated Learning-enabled Nano-drones*. **Accepted** to 2026 IEEE International Conference on Robotics and Automation (ICRA).

## SKILLS

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- **Languages:** Italian (mother tongue), English (C2 Level, Cambridge Proficiency Exam (CPE))
- **Programming Languages:** Python, C (primary), Java (coursework)
- **Python Libraries:** Numpy, Pandas, Scikit-Learn, Pytorch, Tensorflow, Keras
- **High-Performance Computing:** OpenMP, CUDA
- **Simulation Environments:** Isaac, Webots (basic)

## SEMINARS, SUMMER SCHOOLS, WORKSHOPS

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- **Campus MFS Winter and Summer Schools** 2018  
*"Scuola di Formazione Scientifica Luigi Lagrange"* Bardonecchia (TO), Italy
  - Attended courses on Calculus and Advanced Topics in Mathematics, Particle Physics, Genetic Algorithms and Bioinformatics.
- **Marconi Physics Summer School** 2018  
*Liceo Scientifico e Musicale "G.Marconi"* Apecchio (PU), Italy
  - 4-day summer program open to the top 20 students in the 4th year cohort
- **Cycle of Seminars "Matematica E"** 2017-2019  
*University of Urbino* Urbino (PU), Italy
  - Attended two cycles of seminars on the applications of Mathematics to both sciences and humanities