Eros Fanì

📅 July 13, 1997 ✉ efani@bcamath.org 🌐 erosfani.github.io in LinkedIn ⭕ Github

Professional and teaching experience

Machine Learning Researcher   Oct 2025 – present
GENSYN
- **Research topic**: model merging, mixture of experts, massively decentralized machine learning

Postdoctoral Fellow & **Software Engineer**   Nov 2024 – Sep 2025
BASQUE CENTER FOR APPLIED MATHEMATICS (BCAM)
- Lead developer, **Act.AI project** (PI: Prof. N. Quadrianto)

MSc thesis supervisor   Sep 2023 - Oct 2024
POLYTECHNIC UNIVERSITY OF TURIN (POLITO)
- Topic: Clustered Federated Learning
- Resulted in a publication at **ICML25**

Teaching Assistant   A.Y. 2022/23
POLYTECHNIC UNIVERSITY OF TURIN (POLITO)
- Graduate courses: Machine Learning and Deep Learning ○ Advanced Machine Learning ○ Data Analytics and Artificial Intelligence ○ Web Applications I
- Undergraduate course: Computer Science

MSc thesis supervisor   Sep 2022 - Jul 2023
POLYTECHNIC UNIVERSITY OF TURIN (POLITO)
- Topic: Federated Visual Geo-Localization
- Resulted in a publication at **FedVision @ CVPR 2024**

Teaching collaborator as an undergrad   A.Y. 2018/19
POLYTECHNIC UNIVERSITY OF TURIN (POLITO)
- Undergraduate courses: Algorithms and Programming ○ Mathematical Analysis I ○ Mathematical Analysis II

Education

Ph.D. in Computer and Control Engineering   Nov 2021 - Jul 2025
POLYTECHNIC UNIVERSITY OF TURIN (POLITO)
- Thesis title: "**Addressing Heterogeneity in Federated Learning for Real-world Vision Applications**"
- Advisor: Prof. B. Caputo · Polytechnic University of Turin (PoliTo)

ELLIS Ph.D. program - Academic track   Nov 2021 - Jul 2025
EUROPEAN LABORATORY FOR LEARNING AND INTELLIGENT SYSTEMS (ELLIS)
- Primary Host: Prof. B. Caputo · Polytechnic University of Turin (PoliTo)
- Exchange Host: Prof. N. Quadrianto · University of Sussex (UoS)

Visiting period at the University of Sussex for the ELLIS Exchange   May 2024 - Oct 2024
UNIVERSITY OF SUSSEX (UOS), EUROPEAN LABORATORY FOR LEARNING AND INTELLIGENT SYSTEMS (ELLIS)
- Research Advisor: Prof. N. Quadrianto · University of Sussex (UoS)

Visiting period at ELLIS Alicante   Sep 2024
ELLIS ALICANTE, EUROPEAN LABORATORY FOR LEARNING AND INTELLIGENT SYSTEMS (ELLIS)
- Research Advisor: Prof. N. Oliver · ELLIS Alicante

MSc in Data Science and Engineering   Oct 2019 - Oct 2021
Polytechnic University of Turin (PoliTo)
  - Final grade: **110/110 cum laude**
  - Thesis title: **On the Challenges of Class Imbalance in Federated Learning for Semantic Segmentation**

BSc in Computer Engineering   Oct 2016 - Jul 2019
Polytechnic University of Turin (PoliTo)
  - Final grade: **108/110**

Young Talent Project   Oct 2016 - Jul 2019
Polytechnic University of Turin (PoliTo), CRT Foundation
  - Study program of excellence open only to the 2% top-tier students admitted to the PoliTo for the A.Y. 2016/17

High school diploma   Sep 2011 - Jul 2016
Liceo Scientifico Statale M. Curie Giulianova
  - Final grade: **100/100 cum laude**

Additional courses

Warm up your muscles: a ten-stage marathon to become the protagonist of your financial future ↗   Feb 2025 - Apr 2025
Museo del Risparmio, Intesa San Paolo

Fundamentals of Reinforcement Learning ↗   Feb 2022
Coursera, University of Alberta

Sample-based Learning Methods ↗   Jan 2022
Coursera, University of Alberta

Security Soft Start ↗   Jun 2020
ONstairs Academy

Attended schools and programs

Mediterranean Machine Learning (M2L) Summer School   Thessaloniki, Greece
AI Education Foundation   Aug 2023

ELLIS Doctoral Symposium 2021   Tübingen, Germany
University of Tübingen, Max-Planck Institute for Intelligent Systems   Oct 2021

Vodafone IoT Academy   Turin, Italy
Vodafone, Polytechnic University of Turin (PoliTo)   Jan 2020 - Jul 2020

Summer Orientation School Sant'Anna   Volterra, Italy
Scuola Superiore Sant'Anna   Jun 2015

Summer School for Experimental Sciences   Assergi, Italy
Gran Sasso National Laboratories (LNGS) of the Italian National Institute for Nuclear Physics (INFN)   Jun 2014

Publications

G. D. Németh, **E. Fanì**, et. al. "*Diversity-Driven Learning: Tackling Spurious Correlations and Data Heterogeneity in Federated Models*". Third IEEE International Conference on Federated Learning Technologies and Applications, 2025.   FLTA25

E. Fanì, et. al. "*Resource-Efficient Personalization in Federated Learning With Closed-Form Classifiers*". IEEE Access, 2025   IEEE Access

A. Licciardi, …, **E. Fanì**, et. al. "*Interaction-Aware Gaussian Weighting for Clustered Federated Learning*". Forty-second International Conference on Machine Learning, 2025.   ICML25

E. Fanì, et. al."*Accelerating Heterogeneous Federated Learning with Closed-form Classifiers*". Forty-first International Conference on Machine Learning, 2024.   ICML24

M. Dutto, …, **E. Fanì**, et. al. *"Collaborative Visual Place Recognition through Federated Learning"*. FedVision Workshop in Conjunction with the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2024.

<div align="right">FEDVISION CVPR24</div>

E. Fanì, et. al. *"Fed3R: Recursive Ridge Regression for Federated Learning with strong pre-trained models"*. International Workshop on Federated Learning in the Age of Foundation Models in Conjunction with NeurIPS, 2023.

<div align="right">FL@FM NEURIPS23</div>

E. Fanì, et. al. *"FedDrive v2: an Analysis of the Impact of Label Skewness in Federated Semantic Segmentation for Autonomous Driving"*. 5th Italian Conference on Robotics and Intelligent Machines, 2023.

<div align="right">I-RIM23</div>

D. Shenaj*, **E. Fanì***, et. al. *"Learning Across Domains and Devices: Style-Driven Source-Free Domain Adaptation in Clustered Federated Learning"*. IEEE/CVF winter conference on applications of computer vision, 2023.

<div align="right">WACV23</div>

L. Fantauzzo*, **E. Fanì***, et. al. *"FedDrive: Generalizing Federated Learning to Semantic Segmentation in Autonomous Driving"*. IEEE/RSJ International Conference on Intelligent Robots and Systems, 2022.

<div align="right">IROS22</div>

*Equal contribution.

Peer-reviewing

Conference on Neural Information Processing Systems (**NeurIPS**)	2025, 2024
IEEE Robotics and Automation Letters (**RA-L**)	2025, 2022
European Conference on Artificial Intelligence (**ECAI**)	2025
• Invited as Program Committee Member	
IEEE/CVF Computer Vision and Pattern Recognition Conference (**CVPR**)	2025
Transactions on Machine Learning Research (**TMLR**)	2024
European Conference on Computer Vision (**ECCV**)	2024
• Awarded as **Outstanding Reviewer**	
IEEE International Conference on Development and Learning (**ICDL**)	2023
European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML-PKDD**)	2023
IEEE International Conference on Robotics and Automation (**ICRA**)	2023
Learning from Limited and Imperfect Data workshop of the European Conference on Computer Vision (**L2ID-ECCV**)	2022

Honors, awards and achievements

Outstanding Reviewer award at ECCV24
EUROPEAN CONFERENCE ON COMPUTER VISION 2024, EUROPEAN COMPUTER VISION ASSOCIATION (ECVA)

<div align="right">Sep 2024</div>

Scholarship award for the participation to the Mediterranean Machine Learning (M2L) Summer School
AI EDUCATION FOUNDATION

<div align="right">Aug 2023</div>

• Selected as one of the **top 10 students** among 805 applicants (top 1.25%) and 180 participants (top 5.55%)

Granted the WACV23 registration fee waiver
IEEE/CVF WINTER CONFERENCE ON APPLICATIONS OF COMPUTER VISION 2023

<div align="right">Nov 2022</div>

Two-times RoboMensa National Winner
MENSA ITALIA – THE HIGH I.Q. SOCIETY

<div align="right">2015 - 2016</div>

• Logic Contest · **1st place** in both Individual and Teams categories

Two-times National Finalist at the Italian Mathematics Olympic Games in Teams
ITALIAN MATHEMATICAL UNION

<div align="right">2015 - 2016</div>

Three podiums at the RomeCup Rescue Secondary National Finals   2014 - 2016

DIGITAL WORLD FOUNDATION
- **1**ˢᵗ place (2016) – **2**ⁿᵈ place (2014, 2015)

National Finalist at the Italian Informatics Olympic Games   2015

MINISTRY OF INSTRUCTION, UNIVERSITY AND RESEARCH (MIUR)

National Finalist at the Mathematical Games of the Mediterranean   2013

ITALIAN ACADEMY FOR THE PROMOTION OF MATHEMATICS

Languages

Italian - native

English - full professional proficiency

Spanish - elementary proficiency

Coding skills

Python, C, PyTorch, Numpy, Scikit-Learn, WandB, Matplotlib, HTML, HTML5, HTML Bootstrap, CSS, Jax, FedJax, Haiku, Flax, Flower, Java, C++, Bash, Matlab, Javascript, ReactJS, Vite, PHP, R, Apache Spark, Apache Hadoop