SAMUELE FONIO

PhD Student at University of Turin

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EDUCATION

Diploma
Liceo Giolitti-Gandino
2012 – 2017 | Bra(CN), Italy

Grade: 93/100.

Bachelor Degree in Mathematics
Univerisity of Turin
2017 – 2020 | Turin, Italy

Grade: 103/110.

Master Degree in "Stochastics and Data Science"
University of Turin
2020 – 2022 | Turin, Italy

Grade: 110 cum laude/110.
Thesis title: "Contrastive Prototypical Networks for Hierarchical Image Classification".

WORK

Intern
INRAE
June 2022 – September 2022 | Montpellier, France

INRAE - National Research Institute for Agriculture, Food and the Environment (France).
Erasmus+ traineeship experience at the UMR Tetis lab.

Math and Physics teacher
Liceo Giolitti-Gandino
Oct 2022 – Dec 2022 | Bra(CN), Italy

PhD Student in "Modeling and Data Science"
University of Turin
Feb 2023 – ongoing | Turin, Italy

Main topics:
- Geometric deep learning.
- Federated learning.

Visiting student
University of Cambridge
Apr 2024 – June 2024 | Cambridge, UK

ABOUT ME

I consider myself a curious and ambitious person, with an open mind and the capacity of working in group, feature that I've developed during my Master degree and in part in my bachelor degree. At the same time I try to develop personal projects to improve my programming skills.

SOFT SKILLS

Hard-working
Open mind and flexibility | Group working
Curiosity | Attention to details
Can deal with stressful situations

PROGRAMMING SKILLS

R | Python | SQL | C++

LANGUAGES

English

CERTIFICATIONS

IELTS (B2) - Cambridge English
Computer science with python - University of Turin
SAS programming 1 : essentials

PROJECTS

https://github.com/samuelefonio/Projects

VOLUNTEERING

Volunteer in Avis (blood donors' association) Bra since 2017.

SUMMER SCHOOLS

- Bertinoro International Spring School - Bertinoro, March 2023.
- HPC Summer school - Pavia, June 2023.
- DeepLearn23 - Las Palmas de Gran Canaria, July 2023.

Curiosity has brought me to start a PhD at University of Turin with focus on Geometric Deep Learning and Federated Learning.
Thanks to my studies I developed an analytical mindset and learnt how to face problems with a critical and independent attitude.
I am truly passionate about programming, reason for which I started a Computer science oriented PhD program.

RESEARCH INTEREST

My research interests focus on Geometric Deep Learning (GDL) and Federated Learning (FL). GDL is an emerging field of deep learning in which the goal is to improve both understandings of neural networks' architecture and their performances through geometrical approaches. In particular, I am focusing on hyperbolic manifolds as embedding space for images.
On the other hand, FL is focused on developing machine learning models to be trained in a decentralized way: data are distributed among different clients which want to train a single model maintaining the privacy on their own data. The challenges in training such a model are multiple: from both theoretical and practical point of view, since the convergence of the decentralized models are restricted to privacy rules. A list of my publications can be found at https://alpha.di.unito.it/samuele-fonio/.

PUBLICATIONS

- "Hierarchical Priors for Hyperspherical Prototypical Networks", S. Fonio, L. Paletto, M. Cerrato, D. Ienco, R. Esposito. European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, October 4-6, 2023, Bruges (Belgium).
- "Benchmarking Federated Learning Frameworks for Medical Imaging Tasks", S. Fonio, International Conference on Image Analysis and Processing - Workshop "FedMed: Federated Learning in Medical Imaging and Vision", September 11-15, 2023, Udine (Italy)
- "Architecture-based FedAvg for Vertical Federated Learning", B. Casella and S. Fonio, in Proceedings of the 16th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2023) - DML-ICC Workshop, December 4-7, 2023, Taormina (Italy)
- "Benchmarking Parallelization models through Karmarkar Interior-point method", M. Santimaria, S. Fonio, G. Malenza, I. Colonnelli, M. Aldinucci, in Proceedings of 32nd Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2024), March 20-22, 2024, Dublin (Ireland).
- "Federated Adaboost for Survival Analysis", O. Harrak, B. Casella, S. Fonio, P. Fariselli, G. Mittone, C. Rollo, T. Sanavia, M. Aldinucci, in proceedings of European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, 2nd Workshop on Advancements in Federated Learning (WAFL), September 9-13 2024, Vilnius.
- "FedHP: Federated Learning with Hyperspherical Prototypical Regularization", S. Fonio, M. Polato, R. Esposito. In proceedings of the 32nd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, October 9-11, 2024, Bruges (Belgium).

TALKS

- International Conference on Image and Analysis Processing - ICIAP 2023 - Udine, Italy, 11-15/09/2023.
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases - ECML/PKDD 2023 - Turin, Italy, 18-22/09/2023.
- 31st European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning - ESANN 2023 - Bruges, Belgium, 4-6/10/2023.
- International Conference on Utility and Cloud Computing - UCC 2023 - Taormina, Italy, 4-7/12/2023.
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases - ECML/PKDD 2024 - Vilnius, Lithuania, 9-13/09/2023.
- The 3rd Italian Conference on Big Data and Data Science - ITADATA 2024 - Pisa, Italy, 17-19/09/2024
- 32nd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning - ESANN 2024 - Bruges, Belgium, 9-11/10/2024.