Bruno **Casella**

PhD in Modeling and Data Science · Data Scientist · Computer Engineer

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Summary

PhD student in Modeling and Data Science at the University of Turin, granted by Leonardo Company. Have graduated in Computer Engineering in 2020 with a thesis on the performance of the Reinforcement Learning algorithm AlphaZero for the game of Chess in different game and resources scenarios. Have received the Master's Degree in Data Science for management in 2021 with a thesis on Federated Transfer Learning, proposing a novel technique based on test-time parameter aggregation of neural networks.

3+ years of software management experience.

Love for open source projects and big fan of Linux and macOS. Always interested in learning new technologies, tools and methods.

Work Experience

Professional accounting studio "Giuseppe Casella" — *Catania, Italy*

Software Manager — *Oct. 2017 - July 2021*

- In charge of processing accounting data via remote connection system.
- Continuously improved the infrastructure architecture of the studio since launching the service.

Bar Pizzeria Via Caracciolo — *Turin, Italy*

Web Programmer — *Feb. 2022 - May. 2022*

- https://barpizzeriaviacaracciolo.github.io/

Education

University of Catania — *Catania, Italy*

B.S. in Computer Engineering — *Oct. 2016 - Mar. 2020*

- Graduated with a thesis on the evaluation of an AI Method based on Reinforcement Learning Method for the game of Chess.
- Final grade 100.

University of Catania — *Catania, Italy*

M.S. in Data Science for management — *Oct. 2019 - Sep. 2021*

- Graduated with a thesis on Federated Transfer Learning using Network Composition, proposing a novel technique based on test-time parameter aggregation of neural networks.
- Final grade 110L.

University of Turin — *Turin, Italy*

Ph.D. in Modeling and Data Science — *Nov. 2021 - Present*

- Website https://dottorato-mds.campusnet.unito.it/do/home.pl
- Fields of interest:
  - Federated Learning
  - Transfer Learning
  - Confidential Computing
  - High Performance Computing
  - Deep Learning
  - Blockchain

Non-Formal Education

2023	**International Computer Vision Summer School**, University of Catania, link school
2022	**Deep Learning for Medical Imaging Summer School**, ETS, Montreal, link school
2022	**CIS Edge AI Summer School**, EPFL, Losanna link school
2021	**DEEP LEARNING WITH PYTORCH: ZERO TO GANS – Jovian.ai**, Jovian.ai link certificate
2021	**IMPROVING DEEP NEURAL NETWORKS: HYPERPARAMETER TUNING, REGULARIZATION AND OPTIMIZATION**, DeepLearning.AI, Coursera "Specialization" link certificate
2021	**NEURAL NETWORKS AND DEEP LEARNING**, DeepLearning.AI, Coursera "Specialization" link certificate
2021	**BLOCKCHAIN BASICS**, University of Buffalo, Coursera "Specialization" link certificate

Publications

CONFERENCE

2022	**Transfer Learning via Test-Time Neural Networks Aggregation**, B. Casella, A. B. Chisari, S. Battiato, M. V. Giuffrida, VISAPP	*Online*
2022	**Benchmarking FedAvg and FedCurv for Image Classification Tasks**, B. Casella, R. Esposito, C. Cavazzoni, M. Aldinucci, ITADATA	*Milan, Italy*
2022	**Federated Learning meets HPC and Cloud**, I. Colonnelli, B. Casella, G. Mittone, Y. Arfat, B. Cantalupo, R. Esposito, A. R. Martinelli, D. Medic, M. Aldinucci, ML4ASTRO	*Catania, Italy*
2023	**Predicting Cryptocurrencies Market Phases Through On-Chain Data Long-Term Forecasting**, B. Casella, L. Paletto, ICBC	*Dubai, United Arab Emirates*

JOURNAL

2023	**Predictors of target lesion failure after treatment of left main, bifurcation, or chronic total occlusion lesions with ultrathin-strut drug-eluting coronary stents in the ULTRA registry**, O. de Filippo et al., CCI	*Online*
2023	**FedER: Federated Learning Through Experience Replay and Privacy-Preserving Data Synthesis**, M. Pennisi, F. Proietto Salanitri, G. Bellitto, B. Casella, M. Aldinucci, S. Palazzo, C. Spampinato, submitted to CVIU	*Online*
2023	**MIFL: Multi-Input Neural Networks in Federated Learning**, B. Casella, W. Riviera, M. Aldinucci, G. Menegaz, submitted to Cell Patterns	*Online*
2023	**Experimenting with Normalization Layers in Federated Learning on non-IID scenarios**, B. Casella, R. Esposito, A. Sciarappa, C. Cavazzoni, M. Aldinucci, submitted to IEEE TNNLS	*Online*

Language skills

Mother tongue

ITALIAN

Proficient

ENGLISH

- Listening understanding: B2
- Listening reading: C2
- Spoken production: B2
- Spoken interaction: B2
- Writing: C2

Digital skills

Gimp | Adobe Photoshop | DaVinci Resolve

PHOTO AND VIDEO EDITING