

# Niccolò Ajroldi

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🔗 Niccolo-Ajroldi

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## WORK EXPERIENCE

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### Meta AI

July 2022 - ongoing

Seattle, WA

AI Resident in Fundamental AI Research (FAIR) Labs

- Developed stochastic optimizers and implemented algorithms for adaptive tuning of hyperparameters.
- Investigated factors contributing to loss explosion in AI model training.
- Gained experience in **ML optimization**, **PyTorch**, slurm, wandb and training vision and language models.

### U-Care Medical

Dec. 2021 - June 2022

Turin, IT

ML Researcher

- Developed models to forecast Acute Kidney Injury in critically ill patients.
- Implemented ML model to discriminate persistent kidney injury from transient kidney injury in ICU patients.
- Optimized **data processing** pipeline in Python, resulting in a 50% reduction in compute time.
- Responsible for statistical analysis and management of large clinical datasets.
- Created an RShiny demo, enhancing **data visualization** and facilitating product promotion to healthcare institutions.

## EDUCATION

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### Politecnico di Milano

March 2019 - Oct. 2021

Milan, IT

Master of Science in Mathematical Engineering & Statistical Learning

- Final grade: 110/110 (GPA: 4.0)
- Thesis: Functional Time Series Forecasting.
- Main courses: Algorithms and Parallel Computing, Applied Statistics, Bayesian Statistics, Machine Learning, Real and Functional Analysis, Stochastic Processes, Game Theory, Optimization.

### Politecnico di Milano

Sept. 2015 - March 2019

Milan, IT

Bachelor of Science in Mathematical Engineering

- Thesis: Deep Learning Optimization Algorithms near Saddle Points.
- Main courses: Linear Algebra, Calculus I, II, III, Differential Equations, Numerical Analysis, Probability.

## TEACHING

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### Politecnico di Milano

Sept. 2020 - Feb. 2021

Milan, IT

Teaching assistant for the course "Algorithms and Parallel Computing"

- Assisted students in laboratories on C++, OOP, parallel programming, MPI and data structures.

## PUBLICATIONS & RESEARCH

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### Conformal Prediction Bands for Two-Dimensional Functional Time Series

Ajroldi, Diquigiovanni, Fontana, Vantini (2023), accepted for publication by *Computational Statistics & Data Analysis*.

Development of algorithms to forecast time evolving surfaces and estimate prediction uncertainty. Proposal of estimation techniques for functional autoregressive models and implementation of distribution-free uncertainty quantification tools.

ArXiv. GitHub.

### Bayesian Nonparametric Clustering of Functional Data

Implementation of a functional clustering algorithm leveraging a Dirichlet Process mixture model to identify nervous system damage in comatose patients, by clustering central nervous system response to electrical stimuli.

Technical report. GitHub.

### Cloud Resource Allocation for Deep Learning Applications

Integration of a C++ sw with local search techniques in order to improve the scheduling phase of Deep Learning applications.