Davide Adamo

PhD candidate in Applied Mathematics
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Profile

I am currently in the third year of my PhD in applied mathematics at the University of the Côte d'Azur. My research focuses on integrating machine/deep learning models into archaeological problems, with a particular emphasis on the study of faunal remains. I aim to develop methodologies that bridge ML and comparative anatomy to enhance the identification, representation, and interpretation of bioarchaeological data.

My main research interests include Optimal Transport methods for ML and barycenter learning, and 3D shape analysis, particularly for supervised and unsupervised classification using topological descriptors.

Education

•**University of Côte d'Azur- Inria - CNRS** *2023*
PhD candidate in Applied Mathematics Nice (FR)
AI for archaeozoology: learning methods to identify and cluster faunal remains,
under the supervision of Marco Corneli, Emmanuelle Vila and Manon Vuillien

•**University of Verona** *2020-23*
Master's degree in Applied Mathematics Verona (IT)
Thesis: *A Topological Data Analysis approach to classification of archaeozoological bones*

•**University of Verona** *2017-20*
Bachelor's degree in Economic & Financial Mathematics Verona (IT)
Thesis: *Algoritmi per la risoluzione di FBSDEs basati sul Deep Learning*

Experience

•**Inria (Sophia Antipolis)** *2022*
Master's Internship Nice (FR)
Objective to develop and test machine learning approaches for the supervised classification
of the archaeozoological bones

•**Accademia d'Arte Circense** *2020-22*
Academic tutor Verona (IT)
Didactic support for artists-students who attend high school and who live inside the academy.
Management of school-family relationships. Daily organization of tasks and supervision of school progress

Research

PUBLICATIONS

- D. Adamo, M. Vuillien, E. Vila and M. Corneli. *Rethinking Multiple Kernel Learning under the lenses of Importance Weighted Monte Carlo Variational Inference.* (Preprint 2025)
- D. Adamo, M. Corneli, M. Vuillien and E. Vila. *An in depth look at the Procrustes–Wasserstein distance: properties and barycenters.* In International Conference on Machine Learning (ICML 2025)
- M. Vuillien, D. Adamo, E. Vila, A. Agraw, T. Argant, D. Helmer, M. Mashkour, A. Moussous, O. Notter, E. Rossoni-Notter, I. Théry and M. Corneli. *Topological data analysis and multiple kernel learning for species identification of modern and archaeological small ruminants.* In Journal of Computer Applications in Archaeology (JCAA 2025)

TALKS & POSTERS

- 2025 (November): *Archaeozoology & Machine Learning: a promising matching*, 10èmes Rencontres de Statistique de l'UBS - Science des données, Histoire & Territoires (Vannes, France)
- 2025 (November - poster): *An in depth look at the Procrustes-Wasserstein distance: properties and barycenters*, SophIA Summit 2025 (Nice, France)
- 2025 (July- poster): *An in depth look at the Procrustes-Wasserstein distance: properties and barycenters*, ICML 2025 (Vancouver, Canada)
- 2025 (June): *An in depth look at the Procrustes-Wasserstein distance: properties and barycenters*, 56ièmes Journées de Statistique de la SFdS (Marseille, France)
- 2025 (May): *Optimal transport for tracking the morphological evolution of small ruminants*, Colloque des Doctorants de 2ème année de l'EDSFA (Nice, France)
- 2025 (May): *Tracking the morphological evolution of small ruminants through Wasserstein barycenters*, International Conference on Computer Application in Archaeology (Nice, France)
- 2025 (February): *Rethinking Multiple Kernel Learning under the lenses of Importance Weighted Monte Carlo Variational Inference*, Long talk at 3IA monthly seminar (Nice, France)

- 2024 (November - poster): *Rethinking Multiple Kernel Learning under the lenses of Importance Weighted Monte Carlo Variational Inference*, SophIA Summit 2024 (Nice, France)
- 2024 (May): *Rethinking Multiple Kernel Learning under the lenses of Importance Weighted Monte Carlo Variational Inference*, 55ièmes Journées de Statistique de la SFdS (Bordeaux, France)
- 2023 (November): *Astragalus bones identification via topological data analysis*, 1st International Conference on artificIAl Intelligence and applied MAthematics for History and Archaeology (IAMAHA) (Nice, France)

SUMMER SCHOOLS

- (2025) Generative Modeling Summer School (GEMSS) / Statlearn, in Nice, France
- (2024) Generative Modeling Summer School (GEMSS) in Eindhoven, Netherlands

Technical Skills

Programming languages: Python, Matlab, R, C, C++, JavaScript
Frameworks: Tensorflow, Pytorch, Keras

Languages

Italian: Native
English: B2 level
French: B2 level
German: A2 level