Efthymios Costa

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 GitHub Profile
 Personal Website

EDUCATION

Imperial College London

October 2021 - Present

Modern Statistics and Statistical Machine Learning (StatML) PhD

Supervisors: Dr Ioanna Papatsouma & Professor Alastair Young

University of Bologna

January - March 2024

 $Visiting\ Doctoral\ Student$

Visiting Supervisor: Professor Christian Martin Hennig

Imperial College London

September 2020 - September 2021

MSc Statistics (Data Science) Distinction (80.89/100)

Thesis: "A benchmarking study of distance-based clustering methods for mixed-type data"

Imperial College London

September 2017 - June 2020

BSc Mathematics First Class Honours (78.21/100)

PROFESSIONAL EXPERIENCE

The Cyprus Institute, Climate & Atmosphere Research Centre

June - August 2020

Nicosia, Cyprus

Summer Research Internship
Project title: "Climate Impacts on Vector-borne Diseases: Integrating Environmental

Drivers to the Mathematical Models of Vector Populations"

PwC Cyprus

June - July 2019

Advisory, Data Analytics Internship

Nicosia, Cyprus

Research Interests

- Unsupervised learning: Cluster analysis, outlier detection, dimensionality reduction.
- Mixed-type data: Combination of continuous and discrete variables in data.
- Robust statistics: Robustness guarantees for machine learning methodologies.

Publications & Preprints

Efthymios Costa, Ioanna Papatsouma (2024). "A novel framework for quantifying nominal outlyingness". arXiv preprint arXiv:2408.07463.

Efthymios Costa, Ioanna Papatsouma, Angelos Markos (2024). "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data". arXiv preprint arXiv:2407.03389.

Efthymios Costa, Ioanna Papatsouma (2023). "Outlier detection for mixed-type data: A novel approach". arXiv preprint arXiv:2308.09562.

Efthymios Costa, Ioanna Papatsouma, Angelos Markos (2022). "Benchmarking distance-based partitioning methods for mixed-type data". In: *Advances in Data Analysis and Classification* 17, pp. 1–24.

FUNDING & AWARDS

Associate Fellow of Advance HE (AFHEA)

Awarded on February 2024, Imperial College London

MSc in Statistics Imperial College London Ambassador

Honorary title in recognition of outstanding contributions to the running and delivery of the programme (Academic Years 2022 - 2023, 2023 - 2024 & 2024 - 2025)

Poster Competition Runner-up & People's Choice Award

Mathematics PhD Symposium 2022, Imperial College London

PhD Studentship

EPSRC Centre for Doctoral Training (CDT) in Modern Statistics and Statistical Machine Learning (StatML)

Warner Prize

Prize awarded for research project development in the MSc in Statistics at Imperial College London - Class of 2021

Outstanding Academic Representation Network Team Award

Student volunteer award - Imperial College Union Student Choice Awards 2020

Conferences, Workshops & Seminars	
UKRI EPSRC Mathematical Sciences Team visit at Imperial College London Poster title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"	9 October 2024 Presenter
18th Conference of the International Federation of Classification Societies Presentation title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type	Data" 16 July 2024 Presenter
Imperial Mathematics PhD Symposium Poster title: "A Novel Approach to Outlier Detection for Mixed-Type Data"	12 June 2024 Presenter
Department of Statistical Sciences "Paolo Fortunati", University of Bologna - Weekly Statistics Semina Presentation title: "Outlier detection for mixed-type data: A novel approach"	ars 1 February 2024 Presenter
16th International Conference on Computational and Methodological Statistics Poster title: "A novel approach to outlier detection for mixed-type data"	16 - 18 December 2023 Presenter
Amazon Development Center Germany GmbH Advanced training on Statistical Machine Learning and Computing for big-data analysis Poster title: "Benchmarking distance-based partitioning methods for mixed-type data"	27 - 28 March 2023 Attendee Presenter
Faculty of Natural Sciences Research Showcase 2022 Presentation title: "Clustering mixed-type data: Which method to choose?"	29 September 2022 Presenter
Bocconi Summer School in Advanced Statistics & Probability Topic: Random Structures and Combinational Statistics	11 - 22 July 2022 Attendee

16 June 2022

29 November - 3 December 2021

Presenter

Attendee

TEACHING EXPERIENCE

Senior Graduate Teaching Assistant

Imperial Mathematics PhD Symposium

Probability and Statistics - BSc/MSci Mathematics Year 1 (Autumn 2024)

62nd Annual Conference of the South African Statistical Association

Probability for Statistics - BSc/MSci Mathematics Year 2 (Autumn 2022)

Department of Mathematics, Imperial College London

Graduate Teaching Assistant

Data Science - MSc Statistics (Spring 2022)

Computational Statistics - MSc Statistics (Autumn 2022, 2023 & 2024)

Unsupervised Learning - MSc Machine Learning and Data Science (Autumn 2022)

Deep Learning, Supervised Learning - MSc Machine Learning and Data Science (Spring 2023)

Poster title: "A full factorial benchmarking study of non-parametric partitioning methods for mixed-type data"

Machine Learning - MSc Statistics (Spring 2023)

Introduction to Statistical Learning, Statistical Modelling II - BSc/MSci Mathematics Year 3/4 (Spring 2023)

Statistical Modelling I - BSc/MSci Mathematics Year 2 (Spring 2023)

Department of Mathematics, Imperial College London

Statistics - MEng Mechanical Engineering Year 3/4 (Autumn & Spring 2021, 2022 & 2023)

Department of Mechanical Engineering, Imperial College London

OUTREACH

• Mentor for Imperial College London Mathematics School Research Project (2024 - 2025).

MEMBERSHIPS

Fellow of the Royal Statistics Society (RSS)

SKILLS

Programming/IT: R (Advanced/Preferred), Python (Intermediate), C++ (Basic), MATLAB (Basic), LATEX, HPC projects on compute clusters, Office 365

Languages: Greek (native), English (fluent), French (proficient)