Efthymios Costa

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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*
Summer Research Internship   Nicosia, Cyprus
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   *9 October 2024*
Poster title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"   Presenter

18th Conference of the International Federation of Classification Societies   *16 July 2024*
Presentation title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"   Presenter

Imperial Mathematics PhD Symposium   *12 June 2024*
Poster title: "A Novel Approach to Outlier Detection for Mixed-Type Data"   Presenter

Department of Statistical Sciences "Paolo Fortunati", University of Bologna - Weekly Statistics Seminars   *1 February 2024*
Presentation title: "Outlier detection for mixed-type data: A novel approach"   Presenter

16th International Conference on Computational and Methodological Statistics   *16 - 18 December 2023*
Poster title: "A novel approach to outlier detection for mixed-type data"   Presenter

Amazon Development Center Germany GmbH   *27 - 28 March 2023*
Advanced training on Statistical Machine Learning and Computing for big-data analysis   Attendee
Poster title: "Benchmarking distance-based partitioning methods for mixed-type data"   Presenter

Faculty of Natural Sciences Research Showcase 2022   *29 September 2022*
Presentation title: "Clustering mixed-type data: Which method to choose?"   Presenter

Bocconi Summer School in Advanced Statistics & Probability   *11 - 22 July 2022*
Topic: Random Structures and Combinational Statistics   Attendee

Imperial Mathematics PhD Symposium   *16 June 2022*
Poster title: "A full factorial benchmarking study of non-parametric partitioning methods for mixed-type data"   Presenter

62nd Annual Conference of the South African Statistical Association   *29 November - 3 December 2021*
    Attendee

Teaching Experience

Senior Graduate Teaching Assistant
Probability and Statistics - BSc/MSci Mathematics Year 1 (Autumn 2024)
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)
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)