Efthymios Costa

🏛 Office 667, Huxley Building
Department of Mathematics, Imperial College London
180 Queen's Gate, SW7 2AZ London, UK

📞 (+44)7938778387
✉ ec1917@ic.ac.uk
⭘ GitHub Profile
🌐 Personal Website

EDUCATION

Imperial College London　　*Oct 2021 - Present*
Statistics and Machine Learning (StatML) PhD
Supervisors: Dr Ioanna Papatsouma & Professor Alastair Young

University of Bologna　　*Jan - Mar 2024*
Visiting Doctoral Student
Visiting Supervisor: Professor Christian Martin Hennig

Imperial College London　　*Sep 2020 - Sep 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　　*Sep 2017 - Jun 2020*
BSc Mathematics　　First Class Honours (78.21/100)

PROFESSIONAL EXPERIENCE

The Cyprus Institute, Climate & Atmosphere Research Centre　　*Jun - Aug 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　　*Jun - Jul 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 (2025) Contribution to the discussion of Dümbgen and Davies (2025) "Connecting Model-Based and Model-Free Approaches to Linear Least Squares Regression" *(To appear in Statistica)*

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

Award for Best Postgraduate/Doctoral Paper
6th Annual Conference of the Cyprus Statistical Society, 2025

Faculty of Natural Sciences Prize for Excellence in Teaching
Nominated for excellence in teaching and learning, 2025, 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

Poster Competition Runner-up & People's Choice Award
Mathematics PhD Symposium 2022, Imperial College London

PhD Studentship
EPSRC Centre for Doctoral Training (CDT) in Statistics and 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

Qualifications

Associate Fellow of Advance HE (AFHEA)
Awarded on February 2024, Imperial College London

Conferences, Workshops & Seminars

International Conference on Robust Statistics (ICORS 2025)	*19 - 23 May 2025*
Presentation title: "A novel framework for quantifying nominal outlyingness"	Invited Speaker
18th International Conference on Computational and Methodological Statistics	*14 - 16 Dec 2024*
Presentation title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"	Presenter
RSS Emerging Applications Section Meeting "Network and Clustering Analysis for Emerging Applications"	*13 Dec 2024*
Presentation title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"	Invited Speaker
UKRI EPSRC Mathematical Sciences Team visit at Imperial College London	*9 Oct 2024*
Poster title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"	Presenter
18th Conference of the International Federation of Classification Societies	*16 Jul 2024*
Presentation title: "A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data"	Presenter
Imperial Mathematics PhD Symposium	*12 Jun 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 Feb 2024*
Presentation title: "Outlier detection for mixed-type data: A novel approach"	Presenter
16th International Conference on Computational and Methodological Statistics	*16 - 18 Dec 2023*
Poster title: "A novel approach to outlier detection for mixed-type data"	Presenter
Amazon Development Center Germany GmbH	*27 - 28 Mar 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 Sep 2022*
Presentation title: "Clustering mixed-type data: Which method to choose?"	Presenter
Bocconi Summer School in Advanced Statistics & Probability	*11 - 22 Jul 2022*
Topic: Random Structures and Combinational Statistics	Attendee
Imperial Mathematics PhD Symposium	*16 Jun 2022*
Poster title: "A full factorial benchmarking study of non-parametric partitioning methods for mixed-type data"	Presenter

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

Statistics - MEng Mechanical Engineering Year 3/4 (Autumn 2023)
Department of Mechanical Engineering, 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

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)