



TO MAGNIFICA RETTRICE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 7068

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Economia, Management e Metodi Quantitativi**.

Scientist- in - charge: Dr. Luca Rossini

[Efthymios Costa]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Costa
Name	Efthymios

PRESENT OCCUPATION

Appointment	Structure
Postgraduate Research (PhD Student) in Department of Mathematics, Imperial College London	Duties include research and write-up of research articles, attending courses offered by both the Graduate School and the StatML CDT and presentations at conferences and smaller research groups. Additionally, as a (Senior) Graduate Teaching Assistant (GTA), I have been involved in course demonstration, helping module leads with setting up and marking assignments and holding office hours for students.

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	BSc Mathematics	Imperial College London	2020
Specialization			
PhD	PhD Statistics and Machine Learning	Imperial College London	2025 (provisional)
Master	MSc Statistics (Data Science)	Imperial College London	2021
Degree of medical specialization			
Degree of European specialization			
Other			



REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date registration	of Association	City
08/10/2024	Royal Statistical Society (RSS)	London

FOREIGN LANGUAGES

Languages	level of knowledge
English	Fluent
Greek	Native
French	Proficient

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2021	Warner Prize: Prize awarded for research project development in the MSc in Statistics at Imperial College London - Class of 2021
2021	EPSRC PhD Studentship for Centre for Doctoral Training (CDT) in Statistics and Machine Learning (StatML)

TRAINING OR RESEARCH ACTIVITY

<p>I am interested in a broad range of topics in methodological and multivariate statistics, as well as in machine learning. My research is currently centred on the confluence of unsupervised learning methodologies for mixed-type data with concepts of robustness. My current work is focused on the extension of the highly-robust Minimum Covariance Determinant (MCD) estimator for mixed-type data and on kernel metric learning for unsupervised cluster analysis.</p> <p>During the PhD, I have been trained on several topics and statistical concepts including selective inference, causal inference, multivariate time series, graphical models and AI applications in finance, chemistry, agriculture and healthcare.</p>

PROJECT ACTIVITY

Year	Project
2021	Mixed-type data clustering: a full factorial benchmarking study on distance-based clustering methods
2022	Investigating robust partitional clustering methods
2023	Outlier Detection for Mixed-Type Data
2023	A novel framework for quantifying nominal outlyingness
2024	A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data



2024	Extending the Minimum Covariance Determinant estimator for mixed-type data: Insights and Challenges
2025	Kernel metric learning for clustering mixed-type data

PATENTS

Patent
N/A

CONGRESSES AND SEMINARS

Date	Title	Place
14/12/2024	A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data	18th International Conference on Computational and Methodological Statistics
13/12/2024	A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data	RSS Emerging Applications Section Meeting "Network and Clustering Analysis for Emerging Applications"
09/10/2024	A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data	UKRI EPSRC Mathematical Sciences Team visit at Imperial College London
16/07/2024	A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data	18th Conference of the International Federation of Classification Societies
12/06/2024	Novel Approach to Outlier Detection for Mixed-Type Data	Imperial Mathematics PhD Symposium 2024
01/02/2024	Outlier detection for mixed-type data: A novel approach	Department of Statistical Sciences "Paolo Fortunati", University of Bologna - Weekly Statistics Seminars
17/12/2023	A novel approach to outlier detection for mixed-type data	16th International Conference on Computational and Methodological Statistics
28/03/2023	Benchmarking distance-based partitioning methods for mixed-type data	Amazon Development Center Germany GmbH
29/09/2022	Clustering mixed-type data: Which method to choose?	Imperial College London Faculty of Natural Sciences Research Showcase 2022
16/06/2022	A full factorial benchmarking study of non-parametric partitioning methods for mixed-type data	Imperial Mathematics PhD Symposium 2022

PUBLICATIONS

Books
N/A

Articles in reviews
Efthymios Costa , Ioanna Papatsouma (2024). "A novel framework for quantifying nominal outlyingness". arXiv preprint arXiv:2408.07463. (<i>Under review</i>)



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

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.

Congress proceedings

Efthymios Costa, Ioanna Papatsouma, Angelos Markos (2024). “A Deterministic Information Bottleneck Method for Clustering Mixed-Type Data”. *Proceedings of the 18th Conference of the International Federation of Classification Societies*. In *Data Science, Classification, and Artificial Intelligence for Modeling Decision Making*. Springer (*In Press*)

OTHER INFORMATION

N/A

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: London, 22/01/2025