

Imad EL BADISY

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PROFILE

Research Engineer in Health Data Science, PhD, working at the interface of biostatistics, machine learning, and applied health data analytics. I hold a PhD in Biomedical Sciences from Aix-Marseille University (SESSTIM laboratory) on missing data and machine learning methods for survival analysis. My work focuses on developing algorithms and reproducible workflows for health data analysis and decision support, spanning survival analysis, predictive modeling, interpretable machine learning, and large-scale administrative health data. I develop open-source R packages for survival analysis, missing data, and interpretable machine learning, and contribute as a consultant and trainer in biostatistics and health data science.

SKILLS

Methods: Biostatistics and epidemiology · Survival analysis · Missing data methods · Meta-analysis and evidence synthesis · Interpretable machine learning · Deep learning · Computational biostatistics · Monte Carlo simulation

Tools: R package development · Python · Quarto/LaTeX · Git/GitHub · Slurm/HPC · Large-scale administrative health data pipelines (SNDS)

Languages: Arabic (native) · French (fluent) · English (fluent)

EXPERIENCE

Mohammed VI Center for Research and Innovation (CM6RI)

Rabat, Morocco

Head of AI and Data Science Service

Nov. 2021 – Present

- Leading the AI and Data Science service
- Conducting methodological and applied research in health (oncology, fertility, other biomedical domains)
- Providing methodological support to researchers in computational biostatistics, statistical modeling, and machine learning
- Developing reproducible workflows for health data science and biomedical research projects

The GRAPH Network

Switzerland / Remote

Data Science Education Officer

Sep. 2023 – Dec. 2023

- Designed and delivered training programs in data science for global health
- Developed educational material and course content for data science learners
- Contributed to capacity building in applied data science within a public health context

Institut Mines-Télécom, IMT Atlantique

Brest, France

Research Engineer in Applied Statistics

Sep. 2019 – Sep. 2021

- Conducted statistical analyses of national health data using SNDS-certified workflows at scale
- Implemented automated, reproducible workflows for complex administrative health data
- Supported applied research projects involving health data, epidemiology, and statistical modeling

INSERM

Clermont-Ferrand, France

Biostatistician

Jan. 2019 – Jun. 2019

- Conducted cost-effectiveness evaluation of a clinical protocol on ketamine for chronic pain
- Contributed to statistical and health-economic analyses in a clinical research setting

Université de Sherbrooke

Sherbrooke, Quebec, Canada

Health Economist Intern

Feb. 2017 – Sep. 2017

- Conducted a systematic review and meta-analysis on health utilities in cancer patients
- Contributed to evidence synthesis and health economics research

TEACHING

Mohammed VI Center for Research and Innovation (CM6RI)

Rabat, Morocco

Trainer, Machine Learning for Health

2026

- Applied machine learning for health data analysis · Courses delivered to PhD students

Aix-Marseille University, SESSTIM

Marseille, France

Mentor, Artificial Intelligence for Public Health

2022 – Present

- Courses delivered to Master's students · Machine learning methods · Natural language processing

University Mohammed VI of Health Sciences (UM6SS)

Casablanca, Morocco

Lecturer, Health Data Science

2021 – Present

- Course delivered to undergraduate health students

Institut Mines-Télécom, IMT Atlantique

Brest, France

Lecturer, Health Data Analysis and Decision Support

2020 – Present

- Course delivered to engineering students

Outside working hours: Organizer of Methods in Health Data Science with R (MHDSR), an independent training pathway (BIOSTATR, ML4HOR, METAR) covering applied biostatistics, machine learning, and meta-analysis with R

EDUCATION

Aix-Marseille University, SESSTIM

Marseille, France

PhD in Biomedical Sciences

2021 – 2025

Thesis: [Missing Data and Machine Learning Methods for Survival Analysis](#) · Supervisor: Pr Roch Giorgi

Aix-Marseille University, SESSTIM

Marseille, France

Master 2 in Quantitative Methods for Health Research

2018 – 2019

Université Clermont Auvergne

Clermont-Ferrand, France

Master 1 in Applied Mathematics and Statistics

2017 – 2018

Université Clermont Auvergne, CERDI

Clermont-Ferrand, France

Master 2 in Health Economics

2017

SOFTWARE (R PACKAGES)

survalis: Interpretable Survival Machine Learning Framework

CRAN · v0.7.1

- 19 Survival learners, 7 evaluation metrics, 8 interpretability methods · Maintainer

funcml: Functional Machine Learning Framework

CRAN · v0.7.1

- Unified framework for functional machine learning in R · Maintainer

survdsn: Deep Neural Networks for Survival Analysis (R torch)

CRAN · v0.7.6

- Cox, AFT, and discrete-time neural survival models · Maintainer

tvrmst: Time-Varying RMST from Survival Matrices

CRAN · v0.0.6

- Dynamic RMST summaries for individualized survival curves · Maintainer

unsurv: Unsupervised Clustering of Individualized Survival Curves

CRAN · v0.5.0

- Phenotyping patients from predicted survival curves · Maintainer

mcstatsim: Monte Carlo Statistical Simulation Tools

CRAN · v0.5.0

- Functional approach to monte carlo simulation studies in R · Maintainer

missCforest: Ensemble Conditional Trees for Missing Data Imputation

CRAN · v0.0.8

- Missing data imputation using conditional forest ensembles · Maintainer

functionals: Functional Programming with Parallelism and Progress Tracking

CRAN · v0.5.0

- Functional programming utilities with parallelism and progress tracking · Maintainer

mimar: Compact Multiple Imputation, Assessment, and Reporting

CRAN · v0.8.0

- Streamlined multiple imputation workflow with assessment and reporting · Maintainer

testflow: Statistical Testing, Interpretation, and 'ggplot2'-Based Visualization

CRAN · v0.9.0

- Workflow for statistical testing, interpretation, and visualization · Maintainer

densemplp : Dense Neural Networks for Tabular Classification and Regression	CRAN · v0.5.0
• Dense neural network models for tabular data · Maintainer	
CEACT : Cost-Effectiveness Analysis Toolkit for Clinical Trials	CRAN · v0.5.0
• Cost-effectiveness analysis toolkit for clinical trial data · Maintainer	
missknn : Fast Masked K-Nearest Neighbor Imputation	CRAN · v1.0.0
• Fast masked k-nearest neighbor imputation · Maintainer	

SELECTED TALKS

Comparison of missing data imputation methods in Cox regression with time-varying effects <i>ISCB 2023, Rome</i> · El Badisy I. et al.	2023
Missing data imputation using a meta-algorithm metaCART: simulation under MCAR mechanism <i>EpiClin 2023, Nancy</i> · El Badisy I. et al.	2023

PUBLICATIONS

1. **El Badisy I.** (2026). unsurv: Clustering Individualized Survival Curves. *Bioinformatics Advances*, vbag218.
2. **El Badisy I.** (2026). The R Journal: SurvDNN: Survival Deep Learning Models for Tabular Data. *The R Journal*, 18(1):384-399. <https://doi.org/10.32614/RJ-2026-008>.
3. **El Badisy I.** (2026). funcml: Functional Machine Learning Software for R. *Zenodo*. <https://doi.org/10.5281/zenodo.20707605>.
4. **El Badisy I.**, Assarag B., Belrhiti Z. (2026). Interpretable clinical decision support systems in high-risk pregnancy: a scoping review of models, methods, and implementation. *BMC Pregnancy and Childbirth*, 26(1):125.
5. Bnimoussa J., Bouaddi O., **El Badisy I.**, Khalis M. (2026). Drivers of youth mental health and wellbeing: a large-scale cross-sectional study in Morocco. *BMJ Open*, 16(6):e110683.
6. Lamchabbek N., Huybrechts I., **El Badisy I.**, et al. (2026). Global assessment of the relationship between breast cancer risk and dietary intake: an ecological study. *American Journal of Health Promotion*, 40(5):591-600.
7. Bouaddi O., **El Badisy I.**, Charaka H., et al. (2026). Leveraging the Positive Deviance Approach to Drive Behavior Change in Noncommunicable Diseases: A Scoping Review. *Public Health Challenges*, 5(1):e70074.
8. Lamchabbek N., Mrah S., Mane N., **El Badisy I.**, et al. (2026). Adherence to WCRF/AICR cancer prevention recommendations and reduction in breast cancer risk: results of a large-scale case-control study in Morocco. *The British Journal of Nutrition*, 1-29.
9. Houdou A., Khomsi K., Delle Monache L., **El Badisy I.**, et al. (2025). Enhancing 5-day particulate matter (PM10) forecasts in Morocco using U-net: A deep learning approach. *Atmospheric Research*, 108439.
10. Kadi C., Ahmadi N., Houdou A., **El Badisy I.**, et al. (2025). Differentiating Latent Tuberculosis from Active Tuberculosis Through Activation Phenotypes and Chemokine Markers HLA-DR, CD38, MCP-1, and RANTES: A Systematic Review and Meta-Analysis. *Biomarker Insights*, 20:11772719241312776.
11. Lyubareva I., Rochelandet F., **El Badisy I.** (2025). Imitation of Business Models: The Case of Online News Industry in France. *International Journal of Arts Management*, 27(2):67-85.
12. Houdou A., **El Badisy I.**, Khomsi K., et al. (2024). Interpretable machine learning approaches for forecasting and predicting air pollution: A systematic review. *Aerosol and Air Quality Research*, 24(1):230151.
13. **El Badisy I.**, BenBrahim Z., Khalis M., et al. (2024). Risk factors affecting patient survival with colorectal cancer in Morocco: survival analysis using an interpretable machine learning approach. *Scientific Reports*, 14(1):3556.
14. **El Badisy I.**, BenBrahim Z., Khalis M., et al. (2024). Author Correction: Risk factors affecting patient survival with colorectal cancer in Morocco: survival analysis using an interpretable machine learning approach. *Scientific Reports*, 14:9985.
15. **El Badisy I.**, Graffeo N., Khalis M., Giorgi R. (2024). Multi-metric comparison of machine learning imputation methods with application to breast cancer survival. *BMC Medical Research Methodology*, 24(1):191.
16. Zbiri S., Belghiti Alaoui A., **El Badisy I.**, et al. (2024). Private hospitals in low-and middle-income countries: a typology using the cluster method, the case of Morocco. *BMC Health Services Research*, 24(1):1231.
17. Abdala S.A., Khomsi K., Houdou A., **El Badisy I.**, et al. (2024). Emission reduction strategies and health: a systematic review on the tools and methods to assess co-benefits. *BMJ Open*, 14(12):e083214.

18. **El Badisy I.**, Nejari C., Naim A., et al. (2023). CO10. 6-Imputation des données manquantes par un méta-algorithme (metaCART): étude de simulation. *Epidemiology and Public Health = Revue d'Epidémiologie et de Santé Publique*, 71:101632.
19. Jallal M., Berrada K., Bouaddi O., **El Badisy I.**, et al. (2023). How physicians in a Moroccan tertiary care center perceive teleconsultation during COVID-19 pandemic? *Telemedicine and e-Health*, 29(2):284-292.
20. Khalis M., Tembo J.M.W., Elmouden L., **El Badisy I.**, et al. (2023). Tobacco Use Among Dental Students in Morocco: Opportunities for Professional Cancer Education. *Journal of Cancer Education*, 38(3):821-828.
21. Houdou A., Khomsi K., Leghrib R., **El Badisy I.**, Abdala S.A., Ibrahimi A., et al. (2023). Forecasting Particulate Matter (PM10) Using Machine Learning Algorithms in Agadir. *ISEE Conference Abstracts*, 2023(1).
22. Houdou A., **El Badisy I.**, Abdala S.A., Khomsi K., Khalis M. (2023). A Machine Learning Approach for Particulate Dust Forecasting in Morocco. *ISEE Conference Abstracts*, 2023(1).
23. Khalis M., Toure A.B., **El Badisy I.**, et al. (2022). Relationship between meteorological and air quality parameters and COVID-19 in Casablanca region, Morocco. *International Journal of Environmental Research and Public Health*, 19(9):4989.
24. Lyubareva I., Rochelandet F., **El Badisy I.** (2022). Evolution of business models and industrial organization. Uncertainty, competition and imitation behavior in the French Press Industry. *16th International Conference on Arts and Cultural Management*.
25. Le Goff-Pronost M., **El Badisy I.**, Dejonghe Q., et al. (2022). 5 years of early management of skin cancer by tele-dermatology: what have we learned from real-world data? *International Conferences on E-Society 2022 and Mobile Learning 2022*, 85.
26. Lyubareva I., Mesangeau J., Boudjani N., **El Badisy I.**, Brisson L. (2021). La plateforme des médias français et le ton du débat public. Exemple de YouTube. *Communication. Information médias théories pratiques*, 38(2).
27. Le Stum M., Dardenne G., **El Badisy I.**, et al. (2021). Dynamiques des poses de Prothèse de Genou en France. Projection à 2030. *Colloque annuel de l'Institut Brestois en biologie Santé Matière (IBSAM)*.