Federica Aracri

PhD Student

GOAL

Due to graduate in 2020, I have acquired technical knowledge and skills.
I used the programming language Python to developing tools and scientific papers
about Machine Learning algorithms and imputation of missing data methodologies.
I am a PhD student in Biomarkers of Chronic and Complex Disease at the Neuroscience
Research Center, Magna Graecia University of Catanzaro, Italy.
During my PhD period abroad, I'm learning multiclass classification methods on
international datasets on international datasets.
I serve as reviewer and topics coordinator for Artificial Intelligence in Neurology
(specialty section of Frontiers in Neurology).

EDUCATION

- Professional Qualification

- University: Magna Graecia University, Catanzaro, CZ

- 2018/2020, degree grade 110/110 in Biomedical Engineering

- 2014/2017 in Informatics and Biomedical Engineering

- High school: Liceo Classico Pitagora, Crotone, KR, 2008/2013.

EXPERIENCE

18/09/2023 – 18/03/2024
-Visiting PhD student with topic "multiclass classification studies".
PhD period abroad on behalf of the Department of Computer Science and Systems Engineering at the University of Zaragoza, Spain.

2023
- Partecipation on 36th IEEE International Symposium on Computer Based Medical System, oral communication titled *"Imputation of missing clinical, cognitive and neuroimaging data of Dementia using missForest, a Random Forest based algorithm"*

-Partetipation on International Congress of Parkinson`s Disease and MovementDisorders with a poster presentation titled *"Structural MRI and tremor analysis in the differential diagnosis of rest tremor"*

- Partecipation on IEEE International Workshop on Biomedical Applications,Technologies and Sensors, oral communication titled *"Impact of Imputation Methods onSupervised Classification: A Multiclass Study on Parkinson's Disease and SWEDD"*

2021 - 2024
PhD student in Biomarkers of Chronic and Complex Diseases
• Magna Graecia University of Catanzaro

2020-2021
Junior engineer • VT Solution & Consulting
Used Python language, study and development Machine Learning algorithms

SKILLS

QUALIFICATIONS

- Versatile person with good relational skills;
- Willingness for teamwork;
- Quick learning;
- Costant person with a high sense of duty and sacrifice.

- Certificate B1 English Language
- Certificate of partecipation in the event "TRADEMARKS, PATENTS AND DESIGN: INSTRUMENTS FOR INTEGRATED PROTECTION"
- CST Studio Suite Course
- First Aid certificate (SIMEUP)

EDITORIAL ROLE

- **Review Editor** for Artificial Intelligence in Neurology (specially section of Frontiers in Neurology)
- **Topics Coordinator** (specially section of Frontiers in Neurology: Artificial Intelligence and Machine Learning approaches for Survival Analysis in Neurological and Neurodegenerative diseases)

SCIENTIFIC PAPERS

1. Vizza, P., Aracri, F., Guzzi, P. H., Gaspari, M., Veltri, P., & Tradigo, G. (2024). Machine learning pipeline to analyze clinical and proteomics data: experiences on a prostate cancer case. *BMC medical informatics and decision making*, *24*(1), 93. https://doi.org/10.1186/s12911-024-02491-6

2. Sex Differences in Conversion Risk from Mild Cognitive Impairment to Alzheimer's Disease: An Explainable Machine Learning Study with Random Survival Forests and SHAP. DOI: 10.3390/brainsci14030201

3. Explainability of random survival forests in predicting conversion risk from mild cognitive impairment to Alzheimer's disease. DOI: 10.1186/s40708-023-00211-w

4. Development of a predictive model to distinguish prostate cancer from benign prostatic hyperplasia by integrating serum glycoproteomics and clinical variables. DOI: 10.1186/s12014-023-09439-4

5. Impact of Imputation Methods on Supervised Classification: A Multiclass Study on Patients with Parkinson's Disease and Subjects with Scans Without Evidence of Dopaminergic Deficit. DOI: 10.1109/BATS59463.2023.10303151

6. Conversion from Mild Cognitive Impairment to Alzheimer's Disease: A Comparison of Tree-Based Machine Learning Algorithms for Survival Analysis. DOI: 10.1007/978-3-031-43075-6_16

7. Development of A New Wearable Device for the Characterization of Hand Tremor. DOI: 10.3390/bioengineering10091025

8. Differentiating between common PSP phenotypes using structural MRI: a machine learning study. DOI: 10.1007/s00415-023-11892-y

9. Neuroimaging correlates of postural instability in Progressive Supranuclear Palsy. DOI: 10.1016/j.parkreldis.2023.105768

10. Imputation of missing clinical, cognitive and neuroimaging data of Dementia using missForest, a Random Forest based algorithm. DOI: 10.1109/CBMS58004.2023.00300

11. Cortical involvement in essential tremor with and without rest tremor: a machine learning study. DOI: 10.1007/s00415-023-11747-6

12. Data-Independent Acquisition Mass Spectrometry of EPS-Urine Coupled to Machine Learning: A Predictive Model for Prostate Cancer. DOI: 10.1021/acsomega.2c05487

13. Cortical atrophy distinguishes idiopathic normal-pressure hydrocephalus from progressive supranuclear palsy: A machine learning approach. DOI: 10.1016/j.parkreldis.2022.08.007

14. Magnetic Resonance Planimetry in the Differential Diagnosis between Parkinson's Disease and Progressive Supranuclear Palsy. DOI: 10.3390/brainsci12070949

15. Prostate Cancer Disease Study by Integrating Peptides and Clinical Data.