Mattia Setzu
Ph.D. candidate in Explainable AI

PERSONAL DETAILS

Birth	November 10, 1993
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OrcID	0000-0001-8351-9999
Affiliation	University of Pisa
	KDD Lab at CNR (National Research Council)
Github	github.com/msetzu

RESEARCH AND PUBLICATIONS

My current research focuses on Explainable AI (XAI). Starting with my Master's thesis on *Local to Global* explanation, I focused my Ph.D. research on leveraging local explanations to achieve global ones. Towards the end of the Ph.D., I then shifted focus to locally explain the decisions of text models, specifically Transformer-based models.

TriplEx: Triples for Explanation
M. Setzu, P. Minervini, A. Monreale.
To appear in "The Third IEEE International Conference on Cognitive Machine Intelligence" (COGMI) 2022

> A local explanation algorithm for Transformer-based models.

GLocalX - From Local to Global Explanations of Black Box AI Models
M. Setzu, R. Guidotti, A. Monreale, F. Turini, D. Pedreschi, F. Giannotti
Journal of Artifical Intelligence

> Available in open access, and presented at the International Joint Conference on Artificial Intelligence 2021.
> A Local to Global model-agnostic explanation algorithm for tabular models.

Global explanations with local scoring
M. Setzu, R. Guidotti, A. Monreale
Communications in Computer and Information Science, vol 1167. Springer, Cham.

> Available here. Poster presentation at the AIMLAI XKDD Workshop at ECML PKDD 2019.
> A Local to Global model-agnostic explanation algorithm for tabular models.

SPARQL Queries over Source Code
M. Setzu, M. Atzori
IEEE Tenth International Conference on Semantic Computing

> Available here. Poster presentation at International Conference on Semantic Computing (ICSC) 2016.
> An ontology and ontology builder for Java source code repositories, publication of my Bachelor's thesis results.

Moreover, I've been active as a reviewer (R) and sub-reviewer (SR) for several conferences and workshops:

- IJCAI Workshop on Explainable AI 2019

- ICDM 2019 (SR)

- AAAI 2020 (SR)

- AIxIA 2020 (SR)

- DSAA 2020 (SR)

- BlackBoxNLP 2021 (R)

- NeurIPS 2021 (SR)

- CIKM 2020 (SR)

- CIKM 2021 (SR)

- KDD 2019 (SR)

- KDD 2021 (SR)

SEMINARS AND TALKS

Poster session at IJCAI 21   2021
>   Poster available at msetzu.github.io/about/docs/ijcai21_poster.pdf

Poster session at XKDD (ECML/PKDD workshop on XAI)   2019
>   Poster available at msetzu.github.io/about/docs/xkdd19_poster.pdf

Mauriana Pesaresi Seminars   2019
>   Seminar on my research proposals at the University of Pisa.

Fairness in XAI   2019
>   Seminar on Fairness in XAI at University of Aarhus.

RESEARCH ABROAD

University of Aarhus   Jul 2019 to Sept 2019

In my research period at the University of Aarhus I collaborated with fellow Ph.D. student Simon Enni, and was supervised by Prof. Ira Assent (ira@cs.au.dk) in creating an explainable algorithm to detect unfair behavior in machine learning models.

University College London   March 2020 to Feb 2021

In my research period at UCL I collaborated with senior researcher Pasquale Minervini (p.minervini@ucl.ac.uk) with whom I developed TriplEx, a local explainability algorithm for Transformer-based models.

RESEARCH PROJECTS

SoBigData 2015 − 2019

Collaborated to the Exploratory on Explainable AI. Project website at project.sobigdata.eu

SoBigData++ 2020 − 2024

Collaborated to the Exploratory on Explainable AI. Project website at plusplus.sobigdata.eu

XAI 2019 − 2024

As a Ph.D. student, part of my research on XAI algorithms was part of this European Research Council (ERC) project. Project website at xai-project.eu

EDUCATION

Data Science Summer School 2019

Summer school on data science, with courses on network science, machine learning, and Explainable AI.

Ph.D. courses 2019 − 2021

Ph.D. courses on polyhedral combinatorics, design thinking, and graph algorithms for large networks. English certification (C1) from the Linguistic Centre of University of Pisa.

Ph.D.+ 2020

Entrepreneurship course for Ph.D. students.

Master's in Computer Science, University of Pisa 2016 − 2018

Graduated *summa cum laude*, thesis titled "Building global interpretable classifiers via local explanations".

Bachelor's in Computer Science, University of Cagliari 2012-2016

Graduated with 103/110 with, thesis titled "CodeOntology: a Java semantic database".

WORK EXPERIENCE

Teacher Assistant Jan'19-May'19

Assistant

Assistant for the "Programming Fundamentals" course, a first-year course on programming fundamentals for Physics bachelor's students at the University of Pisa. Course held by Susanna Pelagatti (susanna.pelagatti@unipi.it), Alessio Conte, (alessio.conte@unipi.it), and Andrea Marino (andrea.marino@unifi.it).

Developer Nov'15-Feb'16

Backend developer

I developed the back-end and the front-end of need for nerd, a startup for job placement of computer programmers.

REFERENCES

Ph.D. supervisors

Anna Monreale – anna.monreale@unipi.it

Dino Pedreschi – dino.pedreschi@unipi.it

Master's thesis supervisors

Anna Monreale – anna.monreale@unipi.it

Riccardo Guidotti – riccardo.guidotti@unipi.it

Franco Turini – franco.turini@unipi.it