

Mattia Setzu

Research fellow at University of Pisa

PERSONAL DETAILS

<i>Birth</i>	November 10, 1993
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<i>Affiliation</i>	University of Pisa KDD Lab
<i>Github</i>	github.com/msetzu

RESEARCH AND PUBLICATIONS

My current research is on Explainable AI (XAI). I focused my Ph.D. research on leveraging local explanations to achieve global ones. Currently, I'm the recipient of the "Enriching uninterpretable machine learning models with explanations with local to global methodologies" research fellowship on XAI by the University of Pisa. 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.

The Third IEEE International Conference on Cognitive Machine Intelligence (COGMI) 2021

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 Artificial 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)

SCHOLARSHIPS AND FELLOWSHIPS

Research fellowship

Fellowship on XAI titled “Enriching uninterpretable machine learning models with explanations with local to global methodologies”.

Dec. 2021 -
May 2022

Pegaso Ph.D. Scholarship

Ph.D. scholarship from “Regione Toscana”.

Nov. 2019 -
Nov. 2022

SEMINARS AND TALKS

Poster session at IJCAI 21

Poster available at msetzu.github.io/about/docs/ijcai21_poster.pdf

2021

Poster session at XKDD (ECML/PKDD workshop on XAI)

Poster available at msetzu.github.io/about/docs/xkdd19_poster.pdf

2019

Mauriana Pesaresi Seminars

Seminar on my research proposals at the University of Pisa.

2019

Fairness in XAI

Seminar on Fairness in XAI at University of Aarhus.

2019

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

Ph.D., Computer Science

2018 – 2022

Ph.D. in Computer Science with the thesis “Opening the Black Box: Empowering Machine Learning Models with Explanations”.

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

20 hours, 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

Fellowship supervisor

Salvatore Ruggieri – salvatore.ruggieri@unipi.it

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