Emanuele La Malfa
personal page

Work Experience

Post Doctoral Researcher   Jul. 2023 – Current
Benchmarking Large Language Models.   The Alan Turing Institute & University of Oxford, UK
- Principal Investigators: Prof. Michael Wooldridge, Nigel Shadbolt, and Anthony Cohn.

Research Assistant   Oct. 2019 – Mar. 2021
Enabling rapid adoption of artificial intelligence through an anonymized data protocol and explainable models.   University of Oxford, UK
- Principal Investigator: Prof. Marta Kwiatkowska.
- Collaboration with GenieAI and funded through the InnovateUK scheme.
- The collaboration led to a paper published at EMNLP'20.

Consultant   Mar. 2018 – Aug. 2019
IBM, Global Business Unit   IBM, Milan, Italy
- Design, development, and deploy of a search engine for a public financial institution.
- Design, development, and deploy of a cloud document management system for a public financial institution.

Education

University of Oxford   Oct. 2019 – Nov. 2023
PhD in Computer Science, supervised by Prof. Marta Kwiatkowska.   Oxford, UK
Polytechnic University of Milan   Feb. 2015 – Sept. 2017
Master's Degree in Computer Science and Engineering.   Milan, Italy
Polytechnic University of Milan   Sept. 2011 – Sept. 2014
Bachelor's Degree in Computer Engineering.   Milan, Italy

Selected Publications

A Notion of Complexity for Theory of Mind via Discrete World Models
Under review (long paper)
X. Angelo Huang, **Emanuele La Malfa**, Samuele Marro, Andrea Asperti, Anthony Cohn and Michael Wooldridge

Graph-enhanced Large Language Models in Asynchronous Plan Reasoning
ICML 2024 (long paper, main track)
Fangru Lin, **Emanuele La Malfa**, Valentin Hofmann, Elle Michelle Yang, Anthony Cohn and Janet Pierrehumbert

Deep Neural Networks via Complex Network Theory: a Perspective
IJCAI 2024 (long paper, main track)
Emanuele La Malfa, Gabriele La Malfa, Giuseppe Nicosia, Vito Latora

Code Simulation Challenges for Large Language Models
Under-review (long paper)
Emanuele La Malfa, Christoph Weinhuber, Orazio Torre, Fangru Lin, Samuele Marro, Anthony Cohn, Nigel Shadbolt and Michael Wooldridge

Language-Models-as-a-Service: Overview of a New Paradigm and it its Challenges
Journal of Artificial Intelligence Research (JAIR) - media coverage here and here
Emanuele La Malfa, Aleks Petrov, Frieder Simon, Christoph Weinhuber, Raza Nazar, Anthony Cohn, Nigel Shadbolt and Michael Wooldridge

Language Models Tokenizers Introduce Unfairness Between Languages
NeurIPS 2023 (long paper, main track) - website
Aleksandar Petrov, **Emanuele La Malfa**, Philip Torr, Adel Bibi

***The King is Naked*: on the Notion of Robustness for Natural Language Processing**
AAAI 2022 (long paper, main track) – **oral presentation** –
Emanuele La Malfa, Marta Kwiatkowska

On Guaranteed Optimal Robust Explanations for NLP Models
IJCAI 2021 (long paper, main track)
Emanuele La Malfa, Rhiannon Michelmore, Agnieszka Zbrzeny, Nicola Paoletti, Marta Kwiatkowska

Assessing Robustness of Text Classification through Maximal Safe Radius Computation
EMNLP 2020 (long paper - findings)
Emanuele La Malfa, Min Wu, Luca Laurenti, Benjie Wang, Anthony Hartshorn, Marta Kwiatkowska

Teaching Experience

Deep Learning in Healthcare	2024 (HT)
Practical sessions	*University of Oxford, UK*
Machine Learning	2023 (MT)
Classes	*University of Oxford, UK*
Probabilistic Model Checking	2023 (MT)
Practical sessions	*University of Oxford, UK*
Ethical Computing in Practice	2023 (HT)
Practical sessions	*University of Oxford, UK*
Deep Learning in Healthcare	2023 (HT)
Practical sessions	*University of Oxford, UK*
Probabilistic Model Checking	2022 (MT)
Practical sessions	*University of Oxford, UK*
Machine Learning	2021 (MT)
Classes	*University of Oxford, UK*
Probabilistic Model Checking	2021 (MT)
Practical sessions	*University of Oxford, UK*
Fundamentals of Computer Science	2016 (Oct.-Dec.)
Practical sessions	*Polytechnic University of Milan, Italy*

Conferences and Workshops Organization

Benchmarking Large Language Models	28/11/2023
Workshop Organizer	*The Alan Turing Institute, London, UK*
LOD2020, **LOD2021**, **LOD2022**, **LOD2023**	
Conference Chair	*Lake District/Siena*

Invited Lectures, Talks, and Presentations

Code Simulation Challenges for Large Language Models	02/02/24
Group Talk	*Bocconi, Italy*
On Robustness for Natural Language Processing	19/04/2023
Group Talk	*ICREA, Barcelona*
On the Notion of Robustness for Natural Language Processing	17/01/2023
Departmental Talk	*King's College University of London, UK*
Robustness for Natural Language Processing	22/04/2022
Lecture – Deep Fridays	*University of Bologna, Italy*
Explainable AI	04/03/2022
Lecture – Advanced Artificial Intelligence Course	*Royal Holloway University of London, UK*

Academic Revieweing and Volunteering

The Alan Turing Institute - Reviewer	October - December 2023
Reviewers for the Turing Fellow Program - Panel "Fundamental Research in Data Science and AI"	
Ukrainian Global University - Interviewer	April-June 2023
I interviewed Ukrainian students who want to study in a partner university abroad.	
The Kharkiv and Przemyśl Project	August 2022
I spent a week in Przemyśl (Poland) as a volunteer to help refugees who arrived (returned) from (to) Ukraine.	
Ukrainian Global University - Interviewer	June-May 2022
I interviewed a dozen of prospective undergraduate Ukrainian students who want to study in a partner university abroad.	
Eutanasia Legale - Volunteer	July 2021
I have collected signatures for a referendum to decriminalize euthanasia. The overall campaign gathered 1.2 million valid signatures.	

Tutoring and Mentoring

Williams-Exeter Exchange Programme	2023-2024
Tutoring Saad Waheed and Alisa Kanganis and SimonSocolow (Williams-Exeter Programme exchange students in machine learning).	
University of Oxford	2022
Tutoring Edward Kusel and Aleksandar Radoslavov for their part-B projects (undergraduate in Computer Science).	
Lead the Future - Mentor	2022-current
Lead the Future helps Italian STEM talents find their path to brilliant careers. I am currently mentoring 5 students.	

Angelo Huang   Lead The Future

Visiting research student at Oxford (June-August 2024) - He is an incoming Master's student in CS at ETH, 2025).

Annalaura Pegoraro   Lead The Future

Bachelor's student in math at the University of Padova and an exchange student at Berkeley (Summer 2024).

Giovanni Monea   Lead The Future

Incoming PhD student in Computer Science at Cornell University (2025).

Andrea Cerutti   Lead The Future

Master's student in Computer Science and Engineering at the Polytechnic University of Milan.

Orazio Torre   Lead The Future

Bachelor's student in Computer Science at the University of Salerno.

Riccardo Inghilleri   Lead The Future

Master's student in Computer Science at the Polytechnic University of Milan.

Christoph Weinhuber

Incoming PhD student at Oxford, Dept. of Computer Science (2024-2025).

Samuele Marro

Visiting research student at Oxford (April-June 2024) - Samuele is an incoming PhD student at Dept. of Engineering, Oxford (2024-2025).

Saad Waheed

I supervised Saad for two terms for the Williams-Exeter exchange program (2024) - Saad is a student at Williams College (US).

Alisa Kanganis

I supervised Alisa for two terms for the Williams-Exeter exchange program (2024) - Alisa is a student at Williams College (US).