FABIO AURELIO D'ASARO

PERSONAL INFORMATION

birthplace	Palermo (Italy)
email	fabioaurelio.dasaro@univr.it (institutional)
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CURRENT POSITION

2022-Present   Assistant Professor, UNIVERSITY OF VERONA (Verona, Italy)

I am currently Assistant Professor (RTD-A) at the University of Verona, where I teach and research on Uncertain and Epistemic Reasoning, Temporal and Probabilistic Logics, Logic Programming, Reasoning about Actions and Change and their applications to Artificial Intelligence and Explainable AI.

EDUCATION

2014-2019   PhD in Artificial Intelligence, UNIVERSITY COLLEGE LONDON

My PhD thesis explored how to model uncertainty (Probability Theory, in particular) and knowledge-producing actions in a popular narrative-based framework for Reasoning About Actions called the Event Calculus. Excerpts of my PhD thesis were published in top Logic Programming and AI conferences and journals, including *Artificial Intelligence* (AIJ) and the International Conference on *Logic Programming and Nonmonotonic Reasoning* (LPNMR).

Thesis: "Probabilistic Epistemic Reasoning About Actions", written under the supervision of Rob MILLER, Antonis BIKAKIS and Luke DICKENS.

2013-2014   MSc in Pure Mathematics and Mathematical Logic, UNIVERSITY OF MANCHESTER

Final grade: **Distinction**

Dissertation: "Analogical Reasoning in Unary Inductive Logic", written under the supervision of Jeff B. PARIS

2006-2011   BSc Computer Science, UNIVERSITY OF PALERMO

Final grade: **Summa cum laude** (equivalent to **First Class Honors**).

Dissertation: "La Tesi di Church-Turing e il suo rapporto con alcuni nuovi modelli di calcolo" (en: "The Church-Turing Thesis and its relation with some new computation models"), written under the supervision of Settimo TERMINI

TEACHING EXPERIENCE

2022–Present   Lecturer, UNIVERSITY OF VERONA

I teach the following modules:

- Logic and Philosophy of Science, BA in Philosophy.
- Epistemology of Big Data, MSc in Data Analytics.
- Computational Epistemology, MSc in Artificial Intelligence.
- Logic and Philosophy of Science in Physiotherapy, BSc in Physiotherapy.
- Laboratory of Computer Science and Multimedia Technologies, BA in Philosophy.
- Laboratory of Artificial Intelligence and Neuroscience, PhD in Human Sciences.

2021   (Guest) Lecturer, UNIVERSITY OF MILAN

I gave Computer Science lectures for MSc and PhD students of the Department of Philosophy at the University of Milan, namely:

- *April 2021* - Guest lecture overviewing topics and trends in Machine Learning. The lecture was given in the context of the course Probability Logic taught by H. HOSNI, for students of the MSc in Philosophy (Reasoning, Analysis and Modelling track).
- *January 2021* - Lecturer of the course Topics in Logic, Probability and Computation, for students of the PhD in Mind, Brain and Reasoning. Jointly taught with H. HOSNI and P. BALDI.

Reference: Hykel HOSNI · hykel.hosni@unimi.it

2015–2023   Teaching Assistant, UNIVERSITY COLLEGE LONDON

I have been working as a Lab Demonstrator and Marker in many undergraduate and postgraduate courses offered by the UCL Department of Information Studies, namely:

- *2015–Present*: INST0043 Knowledge Representation and Semantic Technologies
- *2018–2020*: INST0060 Foundations of Machine Learning and Data Science
- *2017–2020*: INST0019 Introduction to Programming and Scripting
- *2018–2019*: INST0029 Server Programming and Structured Data
- *2015–2019*: INST0004 Programming 2

Reference: Rob MILLER · rsm@ucl.ac.uk

2013–2014   Teaching Assistant, UNIVERSITY OF PALERMO

I worked as a Lab Demonstrator in the Theoretical Computer Science course offered by the Department of Mathematics and Computer Science.

Reference: Prof. Settimo TERMINI · settimo.termini@unipa.it

WORK EXPERIENCE

2020-2021   Postdoctoral Researcher, UNIVERSITY OF MILAN (Milan, Italy)

During my period as a post-doctoral fellow in the Logic Group at the University of Milan, I worked on uncertain, depth-bounded and epistemic logics.

2019-2020   Postdoctoral Researcher, CRDC TECNOLOGIE (Naples, Italy)

I worked on the AVATEA Project, which aims to develop an AI system to support the rehabilitation process of children with neuro-motor disorders. Furthermore, I carried out research on explainable AI systems for robotics and preference learning.

2013-2014   Research Assistant, UNIVERSITY OF PALERMO

From January 2013 to January 2014 I worked under the supervision of prof. Settimo TERMINI and Marco Elio TABACCHI as a fully funded graduate research assistant in the NEVERLOST Project (PO-FESR 2007-2013) at the University of Palermo. We developed and implemented an algorithm to find the (sub)optimal displacement of antennas in arbitrarily shaped 2D spaces, using techniques from the field of soft-computing (mainly Fuzzy Logic and Genetic Algorithms). We also worked on a series of side projects including the development of a "serious game" (named "Delivering Freight, ASAP!", click here for a related publication and here for the website) for teaching concepts related to Theoretical Computer Science, and published a series of papers on the foundations of Fuzzy Logic and Computer Science. During the same period, I also worked as Teaching Assistant.

Reference: Marco Elio TABACCHI · marcoelio.tabacchi@unipa.it

Jun-Sep 2011   Undergraduate Intern, ICAR CNR PALERMO

During my internship at ICAR CNR I collaborated to the IMPULSO project, realising a path visualisation tool using Google Maps APIs.

Reference: Massimo COSSENTINO · massimo.cossentino@icar.cnr.it

PUBLICATIONS

2024   An Answer Set Programming-based implementation of Epistemic Probabilistic Event Calculus

F. A. DAsaro, A. Bikakis, L. Dickens, R. Miller, in: International Journal of Approximate Reasoning, pp. 1-31, `https://doi.org/10.1016/j.ijar.2023.109101`.

2023   Deep Reinforcement Learning for Robotic Approaching Behavior Influenced by User Activity and Disegnagement

L. Raggioli, **F. A. DAsaro**, S. Rossi, in: International Journal of Social Robotics, pp. 1-13, `https://doi.org/10.1007/s12369-023-01044-7`.

2023   An Application of a Runtime Epistemic Probabilistic Event Calculus to Decision-making in e-Health Systems

F. A. DAsaro, L. Raggioli, S. Malek, M. Grazioso, S. Rossi, in: Theory and Practice of Logic Programming, pp. 1-24, `https://doi.org/10.1017/S1471068422000382`.

2023   BRIOxAlkemy: A Bias detecting tool

G. Coraglia, **F. A. DAsaro**, F. Genco, D. Giannuzzi, D. Posillipo, G. Primiero, C. Quaggio, in: Proceedings of BEWARE-23 (AIxIA 2023).

2023   Advancing the Boundaries of Formal Argumentation: Reflections on the AI[3] Special Issue

M. D'Agostino, **F. A. DAsaro**, C. Larese, in: Journal of Applied Logics.

2023   How do Decision Support Systems Nudge?

F. Pedrazzoli, **F. A. DAsaro**, M. Badino, in: Proceedings of CEPE 2023.

2022   Using Inductive Logic Programming to globally approximate Neural Networks for preference learning: challenges and preliminary results

D. Fossemò, F. Mignosi, L. Raggioli, M. Spezialetti, **F. A. D'Asaro**, in: Proceedings of BEWARE-22 (AIxIA 2022).

2022   Proof-checking bias in labeling methods

G. Primiero, **F. A. D'Asaro**, in: Proceedings of BEWARE-22 (AIxIA 2022).

2022   Explainable artificial intelligence models and methods in finance and healthcare

B. S. Caffo, **F. A. D'Asaro**, A. D'Avila Garcez, Emanuela Raffinetti, in: Frontiers in Artificial Intelligence, https://doi.org/10.3389/frai.2022.970246.

2021   Modelling Accuracy and Trustworthyness of Explaining Agents

A. Termine, G. Primiero, **F. A. D'Asaro**, in: Proceedings of LORI 2021.

2021   Introducing k-lingo: a k-depth bounded version of ASP system clingo

F. A. D'Asaro, P. Baldi, G. Primiero, in: Proceedings of KR 2021.

2021   Probabilistic Typed Natural Deduction for Trustworthy Computations

F. A. D'Asaro, G. Primiero, in: Proceedings of the TRUST 2021 Workshop at AAMAS 2021.

2021   Predicting humans: a sensor-based architecture for real time Intent Recognition using Problog

G. D. Acciaro, **F. A. D'Asaro**, S, Rossi S, in: Proceedings of WOA 21.

2020   Probabilistic Reasoning About Epistemic Action Narratives

F. A. D'Asaro, A. Bikakis, L. Dickens, R. Miller, in: Artificial Intelligence (AIJ), Volume 287, 2020, https://doi.org/10.1016/j.artint.2020.103352.

2020   Administrating Cognitive Tests Through HRI: an Application of an Automatic Scoring System Through Visual Analysis

S. Sangiovanni, M. Spezialetti, **F. A. D'Asaro**, G. Maggi, S. Rossi, in: Proceedings of ICSR 2020.

2020   Towards an Inductive Logic Programming approach for explaining black-box preference learning systems

F. A. D'Asaro, M. Spezialetti, L. Raggioli, S. Rossi, in: Proceedings of KR 2020.

2019   Towards a Logic-Based Approach for Multi-Modal Fusion and Decision Making during Motor Rehabilitation Sessions

F. A. D'Asaro, A. Origlia, S. Rossi, in: Proceedings of WOA 19.

2017 Computational Intelligence and Citizen Communication in the Smart City

F. A. D'Asaro, M. A. Di Gangi, V. Perticone, M. E. Tabacchi, in: Informatik-Spektrum, November 2017, Volume 40, Issue 1, pp. 25–34.

2017 Foundations for a Probabilistic Event Calculus

F. A. D'Asaro, A. Bikakis, L. Dickens, R. Miller, in: Proceedings of LPNMR 2017, pp. 57–63.

2016 A Note on Carnap's Continuum and the Weak State Description Analogy Principle

F. A. D'Asaro, J. B. Paris, *unpublished*.

2015 Agents Displacement in Arbitrary Geometrical Spaces - An Evolutionary Computation based Approach

F. D'Aleo, **F. A. D'Asaro**, V. Perticone, G. Rizzo, M. E. Tabacchi, in: Proceedings of ICAART 2015, pp. 198–202.

2014 L'obiezione di una Lady ed il computer che vince ai telequiz; Come la flessibilità ha consentito all'Intelligenza Artificiale di superare un limite immaginario

F. A. D'Asaro, V. Perticone, M. E. Tabacchi, in: flessibilMENTE, Un modello sistemico di approccio al tema della flessibilità, Pensa Multimedia (ed.), 2014, pp. 379–398.

2013 Reflections on Technology and Human Sciences: rediscovering a common thread through the analysis of a few epistemological features of fuzziness

F. A. D'Asaro, V. Perticone, M. E. Tabacchi, S. Termini, in: Archives for the Philosophy and History of Soft Computing, Issue 1, October 2013.

2013 A fuzzy methodology to alleviate information overload in eLearning

F. A. D'Asaro, V. Perticone, M. E. Tabacchi, in: Proceedings of EUSFLAT 2013, pp. 161–167.

2013 Technology and human sciences: a dialogue to be constructed or a common thread to be rediscovered?

F. A. D'Asaro, V. Perticone, M. E. Tabacchi, S. Termini, in: Proceedings of IFSA/NAFIPS 2013, pp. 679–684.

COURSES, CONSORTIA, WORKSHOPS:

2016 KR Doctoral Consortium

held during the 15th International Conference on Principles of Knowledge Representation and Reasoning (KR-2016) in Cape Town, South Africa. I gave a short talk and presented a poster based on my PhD thesis. An abstract is also available on the conference's website.

2011   Course "Reflecting on Fuzziness"

This course, titled "Reflecting on Fuzziness - Philosophy, Science, Technology", was held at the European Centre for Soft Computing, Mieres, Spain.

2011   Saturday's Scientific Conversations

This event was focused on discussing subjects related to current XXI Century's problems in the fields of Philosophy, Science, and Technology. It was held in Palermo, Italy.

EDITORIAL SERVICE

- Member of the Program Committee of the International Joint Conference on Artificial Intelligence (IJCAI) in 2020 and 2024.

- PC Member of the International Conference on Principles of Knowledge Representation and Reasoning (KR) since 2022.

- PC Member of the 26th European Conference on Artificial Intelligence (ECAI) since 2023.

- Workshop Chair of the 1st and 2nd Workshops on Bias, Ethical AI, Explainability and the Role of Logic and Logic Programming (BEWARE), co-located with the AIxIA conference since 2022.

- Co-editor of the Special Issue on Explainable Artificial Intelligence models and methods in Finance and Healthcare of the journal Frontiers in Artificial Intelligence

- Workshop Chair of the 1st Workshop on Machine Ethics and Explainability (ME and E), co-located with ICLP 2021.

- Workshop Chair of the 5th Workshop on Advances in Argumentation in Artificial Intelligence (AI^3), co-located with the AIxIA conference 2021.

- I am Review Editor in the Editorial Board of Machine Learning and Artificial Intelligence for Frontiers in Artificial Intelligence, Frontiers in Big Data and Frontiers in Artificial Intelligence in Neurology.

REVIEWING

- 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024)

- 26th European Conference on Artificial Intelligence (ECAI 2023)

- 20th International Conference on Principles of Knowledge Representation and Reasoning (KR 2023)

- 19th International Conference on Principles of Knowledge Representation and Reasoning (KR 2022)

- Special Issue on Reasoning about Social Networks of the Journal of Logic and Computation

- 12th International Conference on Social Robotics (ICSR-2020)

- Journal of Hydrologic Engineering (J. Hydrol. Eng.)

- IEEE International Conference on Systems, Man, and Cybernetics 2019 (SMC-19)

- 20th workshop "From Objects to Agents" (WOA-19)

- 28th International Joint Conference on Artificial Intelligence (IJCAI-19)

- Special Issue on Commonsense Reasoning of the journal Annals of Mathematics and Artificial Intelligence (AMAI)

- 32nd AAAI Conference on Artificial Intelligence (AAAI-18)

- 27th International Joint Conference on Artificial Intelligence (IJCAI-18)
- 33rd International Conference on Logic Programming (ICLP-17)
- 26th International Joint Conference on Artificial Intelligence (IJCAI-17)
- 25th International Joint Conference on Artificial Intelligence (IJCAI-16)

INVITED TALKS

- **Jan 2021** - Invited talk on ILP for Explainable AI at the University of Urbino, in the context of the Synergia Seminars (see https://www.youtube.com/watch?v=m4CiosYDW-A for the full video).
- **Dec 2021** - Invited talk on explaining black-boxes using ILASP at the University of Trieste, Italy.
- **Aug 2021** - Invited talk on my AIJ paper "Probabilistic Reasoning About Epistemic Action Narratives" (joint work with A. Bikakis, L. Dickens and R. Miller) at **IJCAI 2021** (see https://ijcai-21.org/videos-slides/?video=J26 for the full video).
- **13 Apr 2021** - Invited demo at the Lorenz Center Workshop on Explainable Medical AI: Ethics, Epistemology, and Formal Methods.
- **5 Jun 2020** - Invited talk on explaining black-boxes using ILASP at the SPIKE Group (Imperial College London, UK).

RESEARCH GROUPS

- I am member of the Logic Uncertainty Computation and Information (LUCI) Group at the University of Milan, Italy
- I am member of the Structured and Probabilistic Intelligent Knowledge Engineering Group (SPIKE) Group at Imperial College London, UK
- I am member of the Knowledge, Information and Data Science (KIDS) Group at University College London, UK

PROGRAMMING SKILLS

I am fluent in *logic-programming* languages, such as Answer Set Programming and Prolog. I am also familiar with other programming languages such as Java, Python, Matlab, C, Javascript, HTML, PHP, LISP, Clojure and Anglican, although I only have limited or no working experience with them.

LANGUAGES

Italian · Native speaker

English · Full professional proficiency

OTHER INTERESTS

Cinema · Guitar Playing · Music · Chess

Verona, 6/3/2024