

JOSE M. ALVAREZ

University of Pisa, Department of Computer Science, 56127, Italy

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My work focuses on causal inference, algorithmic fairness, and data science for understanding the societal impacts of automatic decision-making. I am particularly interested in studying algorithms as societal shapers by employing techniques from sequential decision-making, economics, and law.

EDUCATION

Ph.D. in Data Science

Nov 2020 - (Ex.) May 2024

Scuola Normale Superiore, Pisa, Italy

Advisor: Prof. Salvatore Ruggieri (University of Pisa)

M.Sc. in Econometrics and Empirical Economics, *mention bien*

Sep 2015 - May 2017

Toulouse School of Economics, Toulouse, France

B.A. in Economics, History, *summa cum laude*

Sep 2011 - May 2015

University of Florida, Florida, USA

FELLOWSHIPS, AWARDS, AND HONORS

Borsa di Ricerca (Research Scholarship), University of Pisa

2023

Marie Skłodowska-Curie Fellowship, NoBIAS ITN, European Union

2020 - 2023

Phi Beta Kappa

2015

Honors Program, University of Florida

2011 - 2015

Davis United Word College Scholar, full scholarship, University of Florida

2011 - 2015

PUBLICATIONS

(* shared first author)

Jose M. Alvarez, Salvatore Ruggieri. “Counterfactual Situation Testing: Uncovering Discrimination under Fairness given the Difference.” *ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO)*, pages 1-11, 2023. [[paper](#)] [[code](#)]

Carlos Mougán, **Jose M. Alvarez**, Salvatore Ruggieri, Steffen Staab. “Fairness implications of encoding protected categorical attributes.” *ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*, pages 454–465, 2023. [[paper](#)] [[code](#)]

Jose M. Alvarez*, Kristen M. Scott*, Bettina Berendt, Salvatore Ruggieri. “Domain Adaptive Decision Trees: Implications for Accuracy and Fairness.” *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, pages 423–433, 2023. [[paper](#)] [[code](#)]

Salvatore Ruggieri, **Jose M. Alvarez**, Andrea Pugnanna, Laura State, Franco Turini. “Can We Trust Fair-AI?” *AAAI Conference on Artificial Intelligence*, pages 15421–15430, 2023. [[paper](#)]

Matilde Lazzari, **Jose M. Alvarez**, Salvatore Ruggieri. “Predicting and explaining employee turnover intention.” *International Journal of Data Science and Analytics*, 14(3):279–292, 2022. [[paper](#)]

PREPRINTS

“The Initial Screening Order Problem” with Salvatore Ruggieri. [[arXiv](#)]

“What’s the Problem, Linda? The Conjunction Fallacy as a Fairness Problem.” [[arXiv](#)]

RESEARCH EXPERIENCE

Marie Skłodowska-Curie Early-Stage Researcher

Department of Computer Science, University of Pisa

Nov 2020 - Present

Pisa, IT

- Early-stage researcher (ESR) with the [NoBIAS: Artificial Intelligence without Bias](#) Innovative Training Network, an interdisciplinary project funded by the European Union's Horizon 2020
- Collaborated continuously with the other 13 ESRs on a range of deliverables for the European Commission, such as a set of advisory reports and white papers, a book, and a testbed/code repository
- Co-organized the first NoBIAS Summer School in Pisa (40 participants) as well as co-led a project on policy advice and best practices for practitioners (paper under submission)

Visiting Research Scientist

SCHUFA Holding AG

Jul - Aug 2023

Wiesbaden, DE

- Collaborated with Dr. Klaus Broelemann, lead of Innovation & Research, on methods for measuring fairness in credit scores using counterfactual reasoning

Visiting Research Scientist

Generali

Sep - Dec 2021

Milan, IT

- Collaborated with Human Resources and Advanced Analytics in formalizing the current human-driven hiring process using fair ranking models

Data Analytics Trainee

Risk Advisory, Deloitte

May - Aug 2017

Gent, BE

- M.Sc. end-of-year project about using recurrent survival analysis to model leaks in a water pipe network, supervised by Dr. Nikos Skantzios and Dr. Gert De Geyter

ACADEMIC VISITS

Saarland University, Machine Learning Group

Host: Prof. Isabel Valera

Aug 2023

Saarbrücken, DE

KU Leuven, Department of Computer Science, DTAI Group

Host: Prof. Bettina Berendt

Sep - Nov 2022

Leuven, BE

PROFESSIONAL EXPERIENCE

Senior Consultant – Operational & Financial Risk Modeling

Risk Advisory, Deloitte

Aug 2017 - Oct 2020

Brussels, BE

- Designed, developed, and deployed statistical machine learning models for clients in the energy & utilities and financial sectors
- Built an end-to-end time series forecasting tool (Clairvoyance) at the [Deloitte aiStudio](#) in Frankfurt, Germany, as the chosen Belgium representative
- Conducted internal and external trainings in R programming, Git, Advanced Loss Given Default modeling (Basel II), and Survival Analysis modeling

Summer Economist

Cabinet Office, UK Government

Jun - Aug 2016

London, UK

- Provided insights via statistical analysis to policy makers on a range of topics, such as studying the volunteering determinants in the UK and the variation in electoral costs across local authorities

PARTICIPATION

Invited speaker, ASR Group, University of Oslo, Host: Prof. Christos Dimitrakakis	Nov 2023
Poster, ACM EAAMO	Oct 2023
Doctoral colloquium, ACM EAAMO	Oct 2023
Presentation, ECML PKDD Workshop on Bias and Fairness in AI	Sep 2023
Presentation, ACM FAccT	Jun 2023
Invited speaker, KDD Lab Seminar, University of Pisa, Host: Mattia Setzu	May 2023
Poster, IMS International Conference on Statistics and Data Science	Dec 2022
Poster, NeurIPS Workshop on Algorithmic Fairness through the Lens of Causality	Dec 2022
Invited speaker, 1st Comète Workshop on Ethical AI, Inria Polytechnique	Sep 2022
Doctoral colloquium, ACM FAccT	Jun 2022
Presentation, 1st European Workshop on Algorithmic Fairness	Jun 2022
Invited speaker, NoBIAS Monthly Colloquium, Host: Gourab Prato	Oct 2021

LEADERSHIP AND COMMUNITY SERVICE

Reviewer for ACM FAccT (2023 -), NeurIPS (2023 -), ICLR (2023 -), NeurIPS 2023 AFT Workshop, NeurIPS 2022 AFCEP Workshop.

Member of Mechanism Design for Social Good (MD4SG).

European Workshop on Algorithmic Fairness (EWAf) [[website](#)] 2022 -

- Social media chair, and member of the advisory board for the 2024 (3rd) edition in Mainz, Germany
- Co-organizer, social media chair, and sponsorship co-chair for the 2023 (2nd) edition in Winterthur, Switzerland, with over a 100 participants

European Association for Algorithmic Fairness (EAAf) [[website](#)] 2023 -

- Co-founder of EAAf, which organizes EWAf, and member of the inaugural board

The TSEconomist – Student Magazine [[website](#)] 2015 - 2017

- Deputy Editor during the final year, leading a team of 40 writers and editors and introducing new sections to the magazine (such as Spotlight and the French Corner) that still remain
- Contributor, e.g.: [Heil Benny! A brief look at jazz during the Third Reich](#); [“Gauche caviar”](#); [In his own narrative: An interview with Nobel Laureate Robert Shiller](#)

SKILLS

Programming	Python, R, Scala
Other	Git, L ^A T _E X, Stata, SQL, PySpark, Docker
Languages	Spanish (Native), English (Bilingual), Italian (Fluent), French (Intermediate)

PERSONAL

Interests	Football (Amatori AICS B1), Music (Drums), Reading
Nationalities	Venezuelan, Italian