# JOSE M. ALVAREZ

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

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## 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

**International Baccalaureate**                                             Sep 2009 - May 2011
*Lester B. Pearson United World College*, B.C., Canada

## FELLOWSHIPS, AWARDS, AND HONORS

**Borsa di Ricerca**, University of Pisa                                            2023 - 2024

**Marie Skłodowska-Curie Fellowship**, European Commission                          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

**United Word College Scholarship** (Full Scholarship), Lester B. Pearson College   2009 - 2011

## PUBLICATIONS

(* shared first author)

1. **J. M. Álvarez**, A. Bringas-Colmenarejo, A. Elobaid, S. Fabbrizzi, M. Fahimi, A. Ferrara, S. Ghodsi, C. Mougan, I. Papageorgiou, P. Reyero, et al. Policy advice and best practices on bias and fairness in ai. *Ethics and Information Technology*, 26(2):31, 2024. [paper]

2. **J. M. Álvarez** and S. Ruggieri. Counterfactual situation testing: Uncovering discrimination under fairness given the difference. In *EAAMO*, pages 2:1–2:11. ACM, 2023. [paper] [code]

3. **J. M. Álvarez**\*, K. M. Scott\*, B. Berendt, and S. Ruggieri. Domain adaptive decision trees: Implications for accuracy and fairness. In *FAccT*, pages 423–433. ACM, 2023. [paper] [code]

4. C. Mougan, **J. M. Álvarez**, S. Ruggieri, and S. Staab. Fairness implications of encoding protected categorical attributes. In *AIES*, pages 454–465. ACM, 2023. [paper] [code]

5. S. Ruggieri, **J. M. Álvarez**, A. Pugnana, L. State, and F. Turini. Can we trust fair-AI? In *AAAI*, pages 15421–15430. AAAI Press, 2023. [paper]

6. M. Lazzari, **J. M. Álvarez**, and S. Ruggieri. Predicting and explaining employee turnover intention. *Int. J. Data Sci. Anal.*, 14(3):279–292, 2022. [paper]

## PREPRINTS

1. J. M. Álvarez, A. Mastropietro, and S. Ruggieri. The initial screening order problem. *CoRR*, abs/2307.15398, 2024. *Under submission.* [arXiv]

2. J. M. Álvarez and S. Ruggieri. Causal perception. *CoRR*, abs/2401.13408, 2024. *In preparation.* [arXiv]

## WORK IN PROGRESS

"The Weighted Partial Dependence Plot" with A. Pugnana, and S. Ruggieri.

"A causal framework for evaluating deferring systems" with A. Pugnana, F. Palomba, and S. Ruggieri.

"Revisiting the Discrimination Comparator" with S. Ruggieri.

## RESEARCH EXPERIENCE

**Marie Skłodowska-Curie Early-Stage Researcher**    Nov 2020 - Present
*Department of Computer Science, University of Pisa*    *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 advise and best practices for practitioners (paper under submission)

**Visiting Research Scientist**    Jul - Aug 2023
*SCHUFA Holding AG*    *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**    Sep - Dec 2021
*Generali*    *Milan, IT*

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

**Data Analytics Trainee**    May - Aug 2017
*Deloitte*    *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 Skantzos and Dr. Gert De Geyter

## ACADEMIC VISITS

**Saarland University**, Machine Learning Group    Aug 2023
*Host:* Prof. Isabel Valera    Saarbrücken, DE

**KU Leuven**, Department of Computer Science, DTAI Group    Sep - Nov 2022
*Host:* Prof. Bettina Berendt    Leuven, BE

## PROFESSIONAL EXPERIENCE

**Senior Consultant – Operational & Financial Risk Modeling**    Aug 2017 - Oct 2020
*Deloitte*    *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**                                               Jun - Aug 2016
*Cabinet Office, UK Government*                                      *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

| | |
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| Invited speaker, EAAMO Bridges, ALP Working Group | May 2024 |
| 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 - ), ICML (2024 - ), ECML PKDD (2024 - ), NeurIPS 2023 AFT Workshop, NeurIPS 2022 AFCP Workshop.

**Member** of Mechanism Design for Social Good (MD4SG), The Knowledge Discovery and Data Mining Laboratory (KDD Lab).

**European Workshop on Algorithmic Fairness (EWAF) [website]**                2022 -
· Social media co-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

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| **Programming** | Python, R, Scala |
| **Other** | Git, LaTeX, Stata, SQL, PySpark, Docker |
| **Languages** | Spanish (Native), English (Bilingual), Italian (Fluent), French (Intermediate) |

## PERSONAL

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