JOSE M. ALVAREZ

KU Leuven, Department of Computer Science, Celestijnenlaan 200A box 2402, 3001 Leuven, Belgium

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CURRENT POSITION

Postdoctoral Researcher Nov 2024 - Present
Department of Computer Science, DTAI Research Unit, KU Leuven *Leuven, BE*

· Led research project with a financial partner on predicting user intent by modeling temporal user-item interaction networks under the mentorship of Jesse Davis and Wouter Verbeke

· Analyzed large-scale time series data from user behavior developing a scalable pipeline on AWS using PySpark while proposing a new feature engineering method

· Presented weekly results to advisors and aligned regularly with product managers and data scientists at the financial partner deriving a unified strategy

EDUCATION

Ph.D. in Data Science, *with distinction* Nov 2020 - Jul 2024
Scuola Normale Superiore, Pisa, Italy
Dissertation: Causality for Fair Machine Learning: Selected Topics and Applications
Committee: Salvatore Ruggieri (advisor), Joshua Loftus, Mykola Pechenizkiy, Eirini Ntoutsi

M.Sc. in Econometrics and Empirical Economics, *with distinction* Sep 2015 - May 2017
Toulouse School of Economics, Toulouse, France

B.A. (double major) in Economics and 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

EXPERIENCE

Marie Skłodowska-Curie Early-Stage Researcher (NoBIAS ITN) Nov 2020 - Oct 2024
Department of Computer Science, KDD Lab, University of Pisa *Pisa, IT*

· Produced with the other 13 NoBIAS ESRs a set of deliverables for the European Commission under strict deadlines, including advisory reports, workshops, and a code repository

· Authored and discussed novel research on counterfactual reasoning and fair decision-making at top trustworthy AI venues, collaborating with researchers across Europe and from different fields

· Co-organized the NoBIAS Summer School in Pisa (40 participants) as well as co-led a survey publication on fair policy advise and best practices for AI practitioners

Senior Consultant (Quantitative Risk Modeling) Oct 2017 - Oct 2020
Risk Advisory, Deloitte *Brussels, BE*

· Designed, developed, and deployed statistical machine learning models on Python and R for Benelux clients in the energy (e.g., predictive maintenance) and financial (e.g., loss given default) sectors

· Built an end-to-end data-driven time series forecasting tool, Clairvoyance, at the Deloitte aiStudio in Frankfurt, DE, as the chosen Belgium representative

· Managed a team of junior data scientists, including regular mentorship meetings, as well as developed the team's learning curriculum for starters

Data Analytics Trainee May - Aug 2017
Risk Advisory, Deloitte *Gent, BE*

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

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

Research Assistant May - Jun 2016
Toulouse School of Economics *Toulouse, FR*

· Participated in the initial stages of Prof. Josepa Miquel-Florensa's project on electoral participation and corruption in Paraguay by cleaning and preparing the collected survey data

Summer Strategic & Commercial Analyst Jun - Aug 2013
Frontera Energy *Bogota, CO*

· Elaborated daily oil and gas price reports, providing economic insight into the effects of current events on price fluctuations in the market world markets for briefings and weekly presentations

RESEARCH VISITS

SCHUFA Holding AG, Innovation & Research Team Jul - Aug 2023
Host: Dr. Klaus Broelemann Wiesbaden, DE

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

KU Leuven, Declarative Languages and Artificial Intelligence Group Sep - Nov 2022
Host: Prof. Bettina Berendt Leuven, BE

Generali, Advanced Analytics Team Sep - Dec 2021
Host: Antonio Bencini Farina Milan, IT

AWARDS

Best Reviewer, International Conference on Machine Learning (ICML) 2024

Borsa di Ricerca, University of Pisa 2023 - 2024

Marie Skłodowska-Curie Fellowship, University of Pisa 2020 - 2023

Phi Beta Kappa, University of Florida 2015

Honors Program, University of Florida 2011 - 2015

Davis United Word College Scholar, University of Florida (full-ride) 2011 - 2015

United Word College Scholarship, Lester B. Pearson College (full-ride) 2009 - 2011

PUBLICATIONS

See also my Google Scholar for a full list; * shared first author

1. F. Palomba*, A. Pugnana*, **J. M. Álvarez**, and S. Ruggieri. A causal framework for evaluating deferring systems. *CoRR*, abs/2405.18902, 2024. *Forthcoming in AISTAT 2025*. [arXiv]

2. **J. M. Álvarez** and S. Ruggieri. Counterfactual situation testing: From single to multidimensional discrimination. *J. Artif. Intell. Res.*, 82:2279–2323, 2025. [paper] [code]

3. **J. M. Álvarez**, A. Mastropietro, and S. Ruggieri. The initial screening order problem. In *WSDM*, pages 165–174. ACM, 2025. [paper] [code]

4. **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]

5. **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]

6. **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]

7. 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]

8. 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]

9. 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 and S. Ruggieri. Causal perception. *CoRR*, abs/2401.13408, 2024. *Under preparation.* [arXiv]

2. J. M. Álvarez and S. Ruggieri. Mutatis Mutandis: Revisiting the comparator in discrimination testing. *CoRR*, abs/2405.13693, 2024. *Under submission.* [arXiv]

3. L. Bothmann, P. A. Boustani, J. M. Alvarez, G. Casalicchio, B. Bischl, S. Dandl. Privilege Scores. *Under submission.* [arXiv]

WORKING PAPERS

1. Take-Off Periods for Count Time Series with W. Verbeke and J. Davis

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

PARTICIPATION

Poster, SMiLe	Jun 2025
Invited speaker, Discrimination, Fairness, and Algorithms Series, University of Mainz	Apr 2025
Poster, ACM WSDM	Mar 2025
Invited speaker, Causality Reading Club, University of Pisa	Jul 2024
Presentation, 3rd European Workshop on Algorithmic Fairness	Jul 2024
Invited speaker, EAAMO Bridges, ALP Working Group	May 2024
Invited speaker, ASR Group, University of Oslo	Nov 2023
Poster, ACM EAAMO	Oct 2023
Doctoral colloquium, ACM EAAMO	Oct 2023
Presentation, ECML Workshop on Bias and Fairness in AI	Sep 2023
Presentation, ACM FAccT	Jun 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

LEADERSHIP AND COMMUNITY SERVICE

2025   AISTAT, ICML, ECML BIAS Workshop (Reviewer)
             4th European Workshop on Algorithmic Fairness (Area Chair)

2024   NeurIPS, ACM FAccT, ICLR, ICML, ECML, ACM AIES (Reviewer)
             3rd European Workshop on Algorithmic Fairness (Area Chair, Social Media Chair)

2023   NeurIPS, ACM FAccT, NeurIPS AFT Workshop (Reviewer)
             2nd European Workshop on Algorithmic Fairness (Co-Organizer, Social Media Chair)

2022   TheWebConf, NeurIPS AFCP Workshop (Reviewer)
             2nd ACM EAAMO (Social Media Chair)

European Association for Algorithmic Fairness, *Co-Founder & Board Member* [Link]   2023 -
Supervised the yearly European Workshop on Algorithmic Fairness

The TSEconomist: Student Magazine, *Deputy Editor* [Link]   2016 - 2017
Led a team of 20 copy editors and writers, producing three issues

SKILLS

Programming   Python, R, PySpark; past experience in Scala

Tools   Git, LaTeX, Bash; past experience in Docker, Stata, QGIS, SQL

Languages   English (native-equivalent), Spanish (native), Italian (working proficiency),
                    French (limited proficiency), German (basic)

PERSONAL

Interests   Football, Running, Drums, Reading
Nationalities   Venezuelan, Italian

<div align="center">Last updated: July 17, 2025</div>