

JOSE M. ALVAREZ

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

Website: cc-jalvarez.github.io

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 advice 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*Risk Advisory, Deloitte*

May - Aug 2017

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 Skantzios and Dr. Gert De Geyter

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

Research Assistant*Toulouse School of Economics*

May - Jun 2016

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*Frontera Energy*

Jun - Aug 2013

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*Host: Dr. Klaus Broelemann*

Jul - Aug 2023

*Wiesbaden, DE***Saarland University**, Probabilistic Machine Learning Group*Host: Prof. Isabel Valera*

Aug 2023

*Saarbrücken, DE***KU Leuven**, Declarative Languages and Artificial Intelligence Group*Host: Prof. Bettina Berendt*

Sep - Nov 2022

*Leuven, BE***Generali**, Advanced Analytics Team*Host: Antonio Bencini Farina*

Sep - Dec 2021

*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. **J. M. Álvarez** and Salvatore Ruggieri. Toward A Causal Framework for Modeling Perception. *Forthcoming in AIES 2025.*

2. 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]
3. **J. M. Álvarez** and S. Ruggieri. Counterfactual situation testing: From single to multidimensional discrimination. *J. Artif. Intell. Res.*, 82:2279–2323, 2025. [paper] [code]
4. **J. M. Álvarez**, A. Mastropietro, and S. Ruggieri. The initial screening order problem. In *WSDM*, pages 165–174. ACM, 2025. [paper] [code]
5. **J. M. Álvarez**, A. Bringas-Colmenarejo, A. Elobaid, S. Fabbriizzi, M. Fahimi, A. Ferrara, S. Ghodsi, C. Mougan, I. Papageorgiou, P. Reyer, et al. Policy advice and best practices on bias and fairness in AI. *Ethics and Information Technology*, 26(2):31, 2024. [paper]
6. **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]
7. **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]
8. 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]
9. 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]
10. 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. Mutatis Mutandis: Revisiting the comparator in discrimination testing. *CoRR*, abs/2405.13693, 2024. *Under submission*. [arXiv]
2. 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

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| 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
Presentation, 1st European Workshop on Algorithmic Fairness

Jun 2022
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 AFCEP 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, L^AT_EX, 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

Last updated: July 22, 2025