

# JOSE M. ALVAREZ

University of Pisa, Department of Computer Science, 56127, Italy  
351 522 9588 ♦ jose.alvarez@di.unipi.it ♦ cc-jalvarez.github.io

## RESEARCH STATEMENT

---

My work focuses on using causality-based modeling frameworks for formalizing, detecting, and mitigating bias in automated decision-making processes. I am particularly interested in finding new methods for enhancing existing causality models to operationalize the social meanings we attribute to protected attributes—such as gender and race—that are often not captured by data alone but are yet essential in framing what we mean by (un)fair decision outcomes within a specific context.

*Key words:* machine learning, causality, fairness, structural causal models, representation bias

## EDUCATION

---

<b>Scuola Normale Superiore</b> Ph.D. Data Science, jointly offered with the University of Pisa <i>Advisor:</i> Salvatore Ruggieri	Nov 2020 - Present
<b>Toulouse School of Economics</b> M.Sc., Econometrics and Empirical Economics	Sep 2015 - May 2017
<b>University of Florida</b> B.A., Economics and History, <i>summa cum laude</i>	Sep 2011 - May 2015

## EXPERIENCE

---

<b>University of Pisa</b> <i>Early-Stage Researcher with NoBIAS ITN</i>	Nov 2020 - Present <i>Pisa, IT</i>
<ul style="list-style-type: none"><li>• NoBIAS: Artificial Intelligence without Bias is part of the Marie Skłodowska-Curie Innovative Training Network (ITN) and funded by the European Union's Horizon 2020</li><li>• The Marie Skłodowska-Curie ESR position is through the University of Pisa's Knowledge Discovery and Data Mining Laboratory (KDD Lab)</li></ul>	
<b>Generali</b> <i>Visiting Researcher</i>	Sep 2021 - Jan 2022 <i>Milan, IT</i>
<ul style="list-style-type: none"><li>• Worked with Human Resources in understanding and operationalizing the current human-driven hiring process using fair ranking modeling techniques</li></ul>	
<b>Deloitte Risk Advisory</b> <i>Senior Consultant - Operational &amp; Financial Risk Modeler</i>	May 2017 - Oct 2020 <i>Brussels, BE</i>
<ul style="list-style-type: none"><li>• Designed, developed, and deployed statistical learning models for clients in the energy &amp; utilities and financial sectors</li><li>• Developed an end-to-end time series forecasting tool at the Deloitte aiStudio in Frankfurt, Germany, as the chosen Belgium representative</li><li>• Conducted internal and external trainings in R programming, Git, Advanced Loss Given Default modeling (Basel II), and Survival Analysis modeling</li></ul>	
<b>UK Government - Cabinet Office</b> <i>Summer Economist</i>	Jun 2016 - Aug 2016 <i>London, UK</i>
<ul style="list-style-type: none"><li>• 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</li></ul>	

## PUBLICATIONS

---

Carlos Mougan, **Jose M. Alvarez**, Gourab K. Patro, Salvatore Ruggieri, Steffen Staab. “Fairness implications of encoding protected categorical attributes.” *In submission*, [paper].

Matilde Lazzari, **Jose M. Alvarez**, Salvatore Ruggieri. “Predicting and explaining employee turnover intention.” *International Journal of Data Science and Analytics*, 2022, [paper].

## WORKING PAPERS

---

“Counterfactual situation testing” with Salvatore Ruggieri.

“What’s the problem, Linda? The role of causal partial perspective(s) when formalizing fairness problems” with Mayra Russo.

“Molecular nodes: On meaningful causal representations of protected attributes.”

“Constrained hiring: Market thickness and fairness” with Antonio Bencini and Salvatore Ruggieri.

## INVITED TALKS

---

2022      ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT); European Workshop on Algorithmic Fairness (EWAF).

## PROFESSIONAL SERVICES

---

Sub-reviewer for AI\*IA 2021, *ECML-PKDD 2021*, *IJCAI 2021*, *UAI 2021*, *AISTATS 2021*, *AISTATS 2022*, *WWW 2022*, *Data Mining and Knowledge Discovery Journal*.

## FELLOWSHIPS, GRANTS, AND AWARDS

---

Marie Skłodowska-Curie Fellowship	2020 - 2023
Phi Beta Kappa	2015
University of Florida’s Honors Program	2015
Davis United World College Scholar	2011 - 2015

## SKILLS

---

<b>Programming</b>	Python, R, Scala
<b>Other</b>	Git, L <sup>A</sup> T <sub>E</sub> X, Stata, SQL
<b>Languages</b>	Spanish, English, Italian, French

Last updated: June 13, 2022