



Discrimination in Treatment Decisions and Its Implications in Data-Driven Fairness

Isabel Valera

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14:00 – 16:30
Humboldt Room,
Harnack House, 14195 Berlin

Data-driven approaches are used to (partially) automate credit scoring decisions by predicting whether or not an applicant is creditworthy based on a set of characteristics, such as age and income of the applicant, along with what we refer to here as „treatment decisions“; e.g., loan amount and interest rates. Existing data-driven approaches to automating and evaluating the accuracy and fairness of such lending decisions ignore the fact that treatment decisions (here, loan terms) are part of the decision and thus may be subject to discrimination.

In this talk, I will use standard credit scoring datasets to 1) show that the current fair data-driven approach neglects treatment discrimination against female applicants and its downstream consequences on the decision outcome (i.e., ability to repay); 2) demonstrate that fairer treatment could lead to better outcomes for all stakeholders (banks and borrowers); and 3) argue for moving beyond binary decisions to fair data-driven decisions. I will also provide a broad discussion of the limitations of the current fair decision pipeline and recommendations for advancing the field towards a non-discriminatory decision pipeline.

Isabel Valera is a professor of machine learning at [Saarland Informatics Campus](#) and Adjunct Faculty at the Max Planck Institute for Software Systems in Saarbrücken. She is a fellow of the [European Laboratory for Learning and Intelligent Systems](#), where she is part of the Robust Machine Learning Program as well as the [Artificial Intelligence & Machine Learning Unit](#). She was previously an independent group leader at the MPI for Intelligent Systems in Tübingen and has held both a Minerva Fast Track and a Humboldt Fellowship. She received her PhD in 2014 from the University Carlos III in Madrid (Spain), and has worked as a postdoctoral researcher at the MPI for Software Systems and at the University of Cambridge (UK). Isabel Valera's research focuses on developing machine learning methods that are flexible, robust, interpretable, and fair.

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