Reliable and fair machine learning for risk assessment
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Propositions accompanying the dissertation

RELIABLE AND FAIR MACHINE LEARNING
FOR RISK ASSESSMENT

António Pereira Barata, 5 April 2023

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1. If the missing mechanism is unknown, joining the missing-indicator method with a robust learner is an appropriate approach to handling missing data.
   (Chapter 2)

2. When applicable, crosslier scores are more reliable than outlier scores.
   (Chapter 3)

3. Scaling classifier outputs using the Platt method is a reliable way to assess the proportion of label noise.
   (Chapter 4)

4. In contrast to other learners, directly optimising for the strong demographic parity condition is computationally feasible in tree-based learners.
   (Chapter 5)

5. To minimise negative environmental impact, research in machine learning needs to be under stricter constraints with respect to energy consumption.

6. Whilst the theoretical foundation of machine learning is well-established in the literature, the theory-to-application transfer is lacking.

7. In the scientific literature, the lack of repositories for *reproducibility* is highly detrimental.

8. Solutions provided by machine learning need to be more holistic.

9. The current reviewing process for journal and conference submissions is not scalable when considering the ratio of submissions to reviewers available.

10. Constructive criticism needs to become the norm when providing feedback to students and colleagues alike.