

# Mitigating Algorithmic Bias in COMPAS Recidivism Algorithm

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## ABSTRACT

Decisions regarding sentencing, bail, parole, and likelihood to re-offend for offender's has been in the hands of judges for many years. However, empirical evidence shows that judges decisions are often inaccurate, making them poor predictors for future offending. Algorithms have been employed to assist judges in their decision making; for example, helping estimate whether an offender will appear in court. Offender's data is collected through a risk-assessment questionnaire which weighs the offender's criminal history, and basic demographic information, such as age and gender. A score is then generated which can be used to categorize defendants into risk categories ranging from low to high. Wisconsin currently uses the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) recidivism algorithm to aid judges during each stage of the criminal justice process. In theory, judges should be able to make more efficient decisions regarding bail or pretrial release given the information provided to them. However, the COMPAS algorithm has proven to be bias toward black defendants. Empirical evidence shows that black offenders are more likely than white offenders to be incorrectly judged a higher risk of recidivism, while white defendants are more likely than black defendants to be incorrectly judged as low risk of recidivism. We are presenting evidence that the COMPAS algorithm is indeed bias towards people based on their membership to a category or a minority. We will present empirical evidence to our external client that our algorithm mitigates discrimination.

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## PVLDB Artifact Availability:

The source code, data, and/or other artifacts have been made available at [http://vldb.org/pvldb/format\\_vol14.html](http://vldb.org/pvldb/format_vol14.html).

## 1 INTRODUCTION

## 2 KEYWORDS

Recidivism, Algorithmic Bias, Machine Learning, Fairness, Criminal Justice System

## 3 MATERIALS AND METHODS

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