Fair Play for Individuals, Foul Play for Groups?
Auditing Anonymization's Impact on ML Fairness

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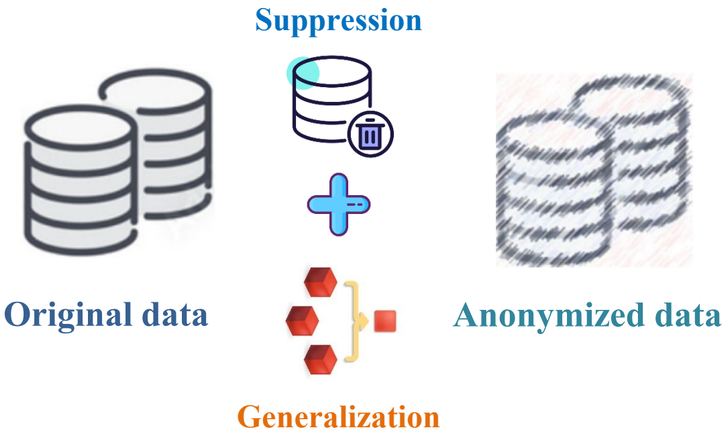
Paper GitHub

"How does anonymization impact fairness metrics in ML?"



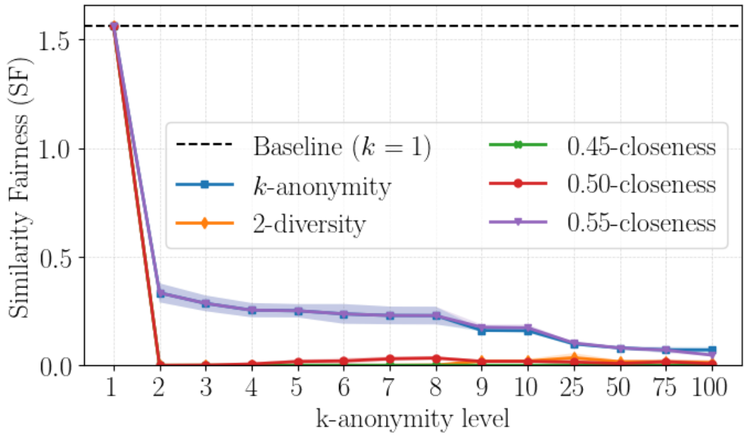
YES! BUT...

"Safe in the crowd"

Alters data distributions

Individual fairness generally **improves** (smoother, more homogeneous data)

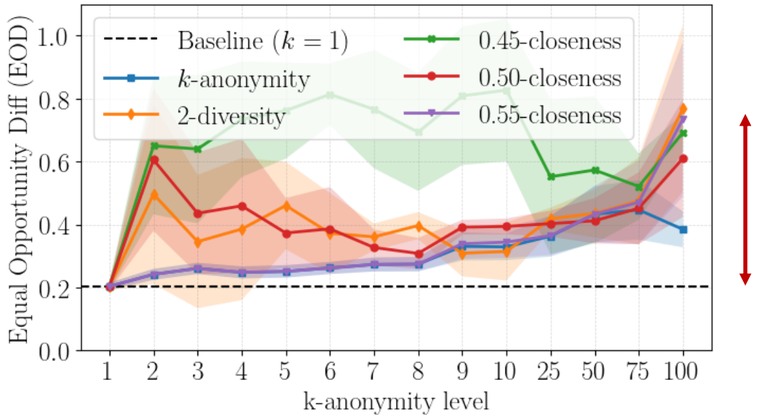
"Similar individuals → similar predictions"
(measures local consistency of model outputs)



More anonymity

Group fairness generally **worsens** (up to 4× degradation)

"Equal outcomes across demographic groups"
(measures parity between protected groups)



More anonymity