Developing and Deploying Robust Fairness-Aware AI Algorithms

(Technical Report)

The Struggle for Safe and Equitable Artificial Intelligence in the United States

(Sociotechnical Research Paper)

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Preface

How can artificial intelligence (AI) systems be implemented for optimum social advantage? Fairness-aware AI algorithms, monitored by equity advocates and constrained by enforceable regulations, can permit the development of AI systems that are consistent with public interest.

AI systems are subject to the effects of algorithmic biases. The theoretical design of an AI system that identifies and mitigates biases was developed and proposed. In the proposed design, a theoretical monitoring system would identify and report emergent biases in deployed models. The design, if implemented, would demonstrate the benefits of fairness-aware AI systems. In future design development stages, researchers should prototype the design, evaluate its performance, and modify it accordingly.

In the United States, social equity advocates seek regulations that would limit inequities in AI applications. Most seek regulations that would prevent AI from learning inherited biases that disadvantage historically marginalized US subpopulations. Effective regulation of AI is crucial to prevent the reinforcement of systemic biases and ensure equitable benefits across all societal segments. This requires a collaborative effort among policymakers, technologists, and social equity advocates to establish comprehensive guidelines and standards that address both the technical and ethical challenges posed by AI technologies.