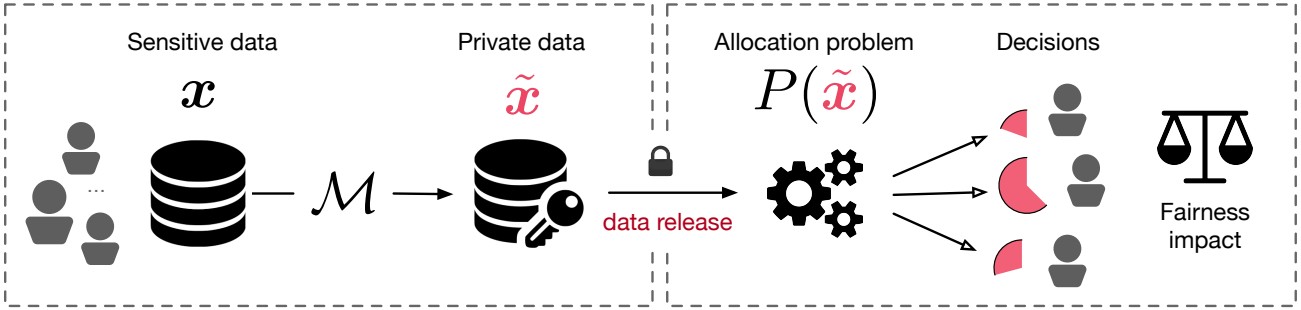
Collaborative Research: SaTC: CORE: Small: Privacy and Fairness in Critical Decision Making

Challenge:

Differential Privacy (DP) data is being used to inform critical decision processes, with important societal and economic impacts. However, the bias and fairness effects of using DP in decision tasks are poorly understood and require novel theory and analysis.

Scientific Impact:

- Provide a new understanding of the factors exacerbating disparate errors in decision tasks that use DP data.
- Define new theoretical frameworks to reason about when and how fairness can be bounded in decision tasks that use DP data.



Solution:

- Identify and understand the structure of decision processes that may be subject to fairness issues when using DP data.
- Define a theoretical framework to characterize and reason about fairness issues arising in tasks that use DP data.
- Design mitigation solutions and develop modeling and software tools to help identify DP fairness issues in decision tasks.

Broader Impact and Broader Participation:

- The project will provide unique perspectives for policymakers about the societal consequences of using DP for critical decision processes, including resource allocations.
- It will quantify the disparate impact arising in these applications and contribute mitigation techniques to overcome some of these issues.
- These contributions will be embedded in modeling and software tools to make the technology widely available and applicable.
- Through a collaboration with Knexus Research, the project will perform use-inspired research that will be directly relevant to data users (e.g., NGOs) and policymakers who work intensively with census and public safety data.

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