

Challenges of Visualizing Differentially Private Data

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Abstract

Differential privacy has become a primary standard for protecting individual data while supporting flexible data analysis. Despite the adoption of differential privacy to a wide variety of applications and tasks, visualizing the output of differentially private algorithms has rarely been considered. Visualization is one of the primary means by which humans understand and explore an unknown dataset and therefore supporting visualization is an important goal to advance the practical adoption of differential privacy.

In this initial work on private data visualization we explore key challenges and propose solution approaches. We use two-dimensional location data as an example domain, and consider the challenges of plotting noisy output, the impact of visual artifacts caused by noise, and the proper way to present known uncertainty about private output.