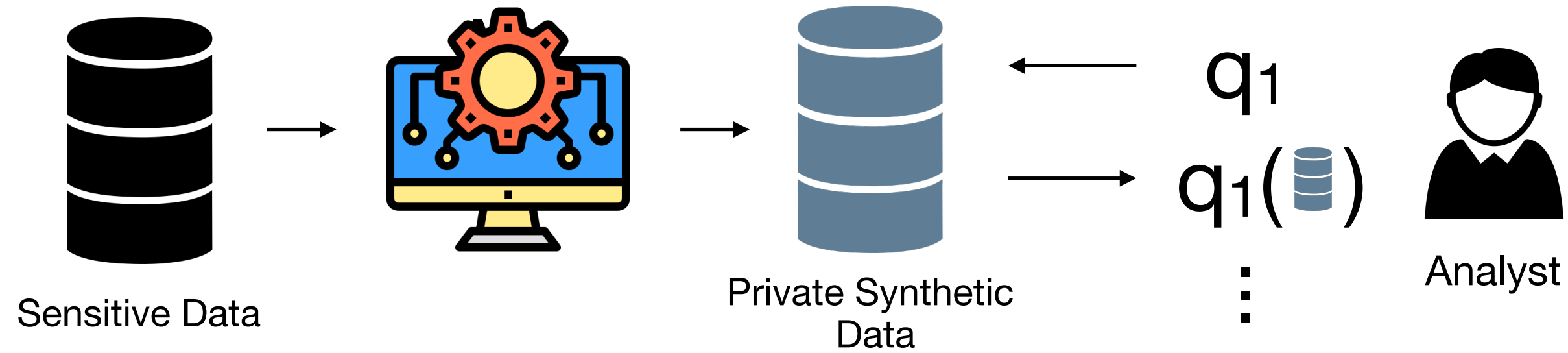


New Oracle-Efficient Algorithms for Synthetic Data Release

Giuseppe Vietri, Grace Tian, Mark Bun, Thomas Steinke, Steven Wu



GOAL: $\max_i |q_i(\text{DB}) - q_i(\text{DB})| < \alpha$

Prior Work:

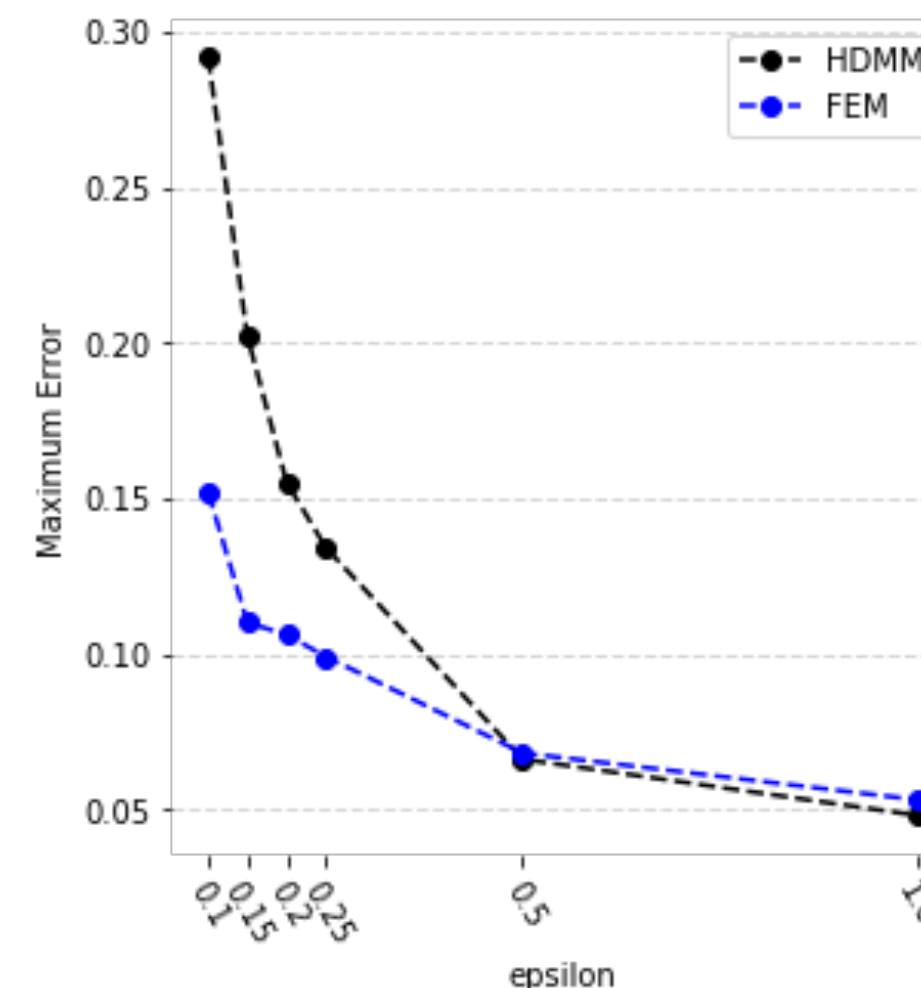
- **MWEM:** It has optimal sample complexity. But exponential runtime. Intractable for high dimensional data domain.
- **HDMM:** State-of-the-Art in Practice.

The FEM algorithm

- FEM: Follow-the-Perturbed-Leader (FTPL) with Exponential Mechanism
- Replace the MWEM's computational bottleneck (MW) by FTPL
- Update in FTPL reduces to a small integer program

Experiments: FEM vs HDMM

ADULT DATASET.



LOANS DATASET.

