Abstract:

We consider the problem of designing a survey to aggregate non-verifiable information from a privacy-sensitive population: an analyst wants to compute some aggregate statistic from the private bits held by each member of a population, but cannot verify the correctness of the bits reported by participants in his survey. Individuals in the population are strategic agents with a cost for privacy, i.e., they not only account for the payments they expect to receive from the mechanism, but also their privacy costs from any information revealed about them by the mechanism's outcome—the computed statistic as well as the payments—to determine their utilities. How can the analyst design payments to obtain an accurate estimate of the population statistic when individuals strategically decide both whether to participate and whether to truthfully report their sensitive information?