

**BIOMEDICAL DATA SCIENCE
PRESENTS:
BIODS 260C
6/1/23 1:30PM-2:50PM
MSOB X303 (ZOOM LINK BELOW)**

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Harvard Data Science Review
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Title: Privacy, Data Privacy, and Differential Privacy

Abstract:

This talk invites curious minds to contemplate the notion of data privacy, especially at the individual levels. It first traces the evasive concept of privacy to a legal right, apparently derived from the frustration of the husband of a socialite attracting tabloids when yellow journalism and printing photography in newspapers became popular in 1890s. More than a century later, the rise of digital technologies and data science has made the issue of data privacy a central concern for essentially all enterprises, from medical research to business applications, and to census operations. Differential privacy (DP), a theoretically elegant and methodologically impactful framework developed in cryptography, is a major milestone in dealing with the thorny issue of properly balancing data privacy and data utility. However, the popularity of DP has brought both hype and scrutiny, revealing several misunderstandings and subtleties that have created confusions even among specialists. The technical part of this talk is therefore devoted to explicating such issues from a statistical framework, built upon the prior-to-posterior semantics of DP and a multi-resolution perspective. This framework yields an intuitive statistical interpretation of DP, albeit it does not correspond in general to the commonly perceived and desired data privacy protection. Ultimately, the talk aims to highlight the challenges and research opportunities in quantifying data privacy, what DP does and does not protect, and the need to properly analyze DP data. (This talk is based on joint work with James Bailie and Ruobin Gong.)

Suggested readings:

- 1) [Harvard Data Science Review: Differential Privacy for 2020 Census](https://hdsr.mitpress.mit.edu/specialissue2), <https://hdsr.mitpress.mit.edu/specialissue2> and, in the same issue, [the editorial](#).
- 2) Oberski, D. L., & Kreuter, F. (2020). Differential Privacy and Social Science: An Urgent Puzzle. *Harvard Data Science Review*, 2(1). <https://doi.org/10.1162/99608f92.63a22079>
- 3) Groshen, E. L., & Goroff, D. (2022). Disclosure Avoidance and the 2020 Census: What Do Researchers Need to Know? *Harvard Data Science Review*, (Special Issue 2). <https://doi.org/10.1162/99608f92.aed7f34f>

Bio:

Xiao-Li Meng, the Founding Editor-in-Chief of Harvard Data Science Review and the Whipple V. N. Jones Professor of Statistics, was named the best statistician under the age of 40 by Committee of Presidents of Statistical Societies (COPSS) in 2001, and he is the recipient of numerous awards and honors for his more than 150 publications in at least a dozen theoretical and methodological areas, as well as in areas of pedagogy and professional development. In 2020, he was elected to the American Academy of Arts and Sciences. Meng received his BS in mathematics from Fudan University in 1982 and his PhD in statistics from Harvard in 1990. He was on the faculty of the University of Chicago from 1991 to 2001 before returning to Harvard, where he served as the Chair of the Department of Statistics (2004–2012 and the Dean of Graduate School of Arts and Sciences (2012–2017).

Zoom link:

<https://stanford.zoom.us/j/92124459914pwd=cFpJYXVLOExUVjMzZkNsYXA0b0RlUT09&from=adon>

Meeting ID: 943 2440 5118

Password: 366430