Anonymization of Data in Healthcare Sector

A policy study

Akshay Bajpai (193079002)
Soham Naha (193079003)
R V Satwik (193079009)
Mohit Agarwala (19307R004)

Outline

- Motivation
- Literature Survey
- Workflow
- References

Motivation: Ensuring Hippocrates' oath

- The motivations behind protecting patient privacy have remained the same since Hippocrates' day
- Cases where anonymization of data failed, and the repercussions:
    - Divulging medical details of citizens from the Massachusetts Group Insurance Commission data
    - "De-anonymizing" "Anonymized" Australian public healthcare data
    - Disclosure of sensitive military intelligence by Polar healthcare app
    - Re-identification of de-identified Netflix Review Data
- Reduce data linkability to protect individuals from potential damage in the future.

Literature Survey

- Anonymization Techniques and its Effect on Accuracy:
  - Personal data anonymization
  - Protecting Privacy Using k-Anonymity
- Policies Regarding Data Anonymization
  - De- Health Framework
- Failures in Data Anonymization:
  - Health Data in the Open World
  - Robust De-anonymization of Large Sparse Datasets
  - 'Data is a fingerprint'
  - Broken Promises of Privacy

Workflow

Literature Survey

Data Collection

Implementation of Code

Identifying Gaps in Existing Policies

Public Survey on Data Protection Awareness

References

- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1450006
- https://www.theguardian.com/world/2018/jul/13/anonymous-browsing-data-medical-records-identity-privacy
- https://arxiv.org/pdf/1902.`00717.pdf
- https://www.nytimes.com/2019/07/23/health/data-privacy-protection.html
- https://www.researchgate.net/publication/228956524_Anonymization_of_General_Practioner_Medical_Records
- https://en.wikipedia.org/wiki/Data_re-identification
- https://hai.stanford.edu/news/de-identifying-medical-patient-data-doesnt-protect-our-privacy
- https://tryolabs.com/blog/2020/06/11/personal-data-anonymization-key-concepts--how-it-affects-machine-learning-models
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2528029/

Thank you