Big Data Challenges and Initiatives at the Cancer Institute of New Jersey

- **Fast growing heterogeneous research datasets**
  - De-identified histological whole slide images used to support medical education as well as development and validation of computer vision algorithms for detecting subtle morphological changes in diseased tissue
  - Multi-modal radiological imaging studies for large-scale clinical trials
  - Optimization of radiation oncology procedures and protocols to improve delivery of treatment to the tumor site
  - Small animal imaging facility that generates 2D, 3D, and 4D images
  - Nextgen sequencing datasets

- **HIPPA protected clinical databases** including electronic patient record, biospecimen datasets, and New Jersey SEER registry, etc.

- **Interoperability challenge** in performing joined query on multiple databases.

- **Helping researcher on their big data needs:**
  - Core facilities established for Biostatistics, Bioinformatics and Biomedical imaging.
  - Computational support (hardware or personnel) is still in high demand.

- **The Precision Medicine Initiative** - towards “Personalized Medicine”

- **Educational Initiatives**: Established Informatics Rotations for medical residents, Established Informatics Fellowship program for medical residents.

- **Business Partnership**: _____________________