

Big Data Neuroscience, Computational Methods, & Predictive Analytics

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Characteristics of Big Neurosci Data

IBM Big Data 4V's: Volume, Variety, Velocity & Veracity

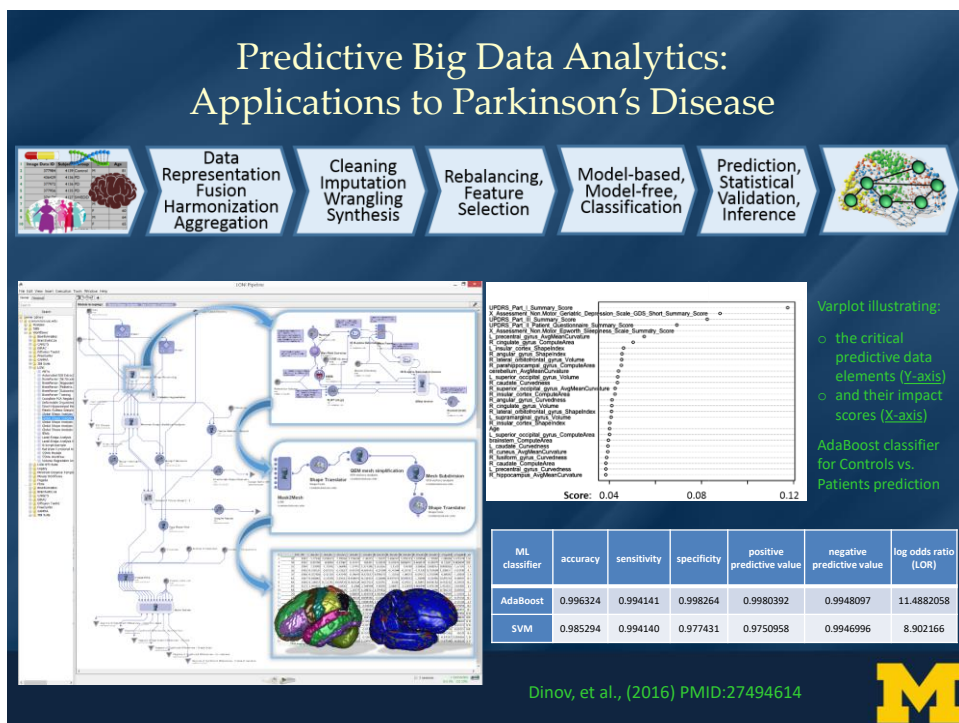
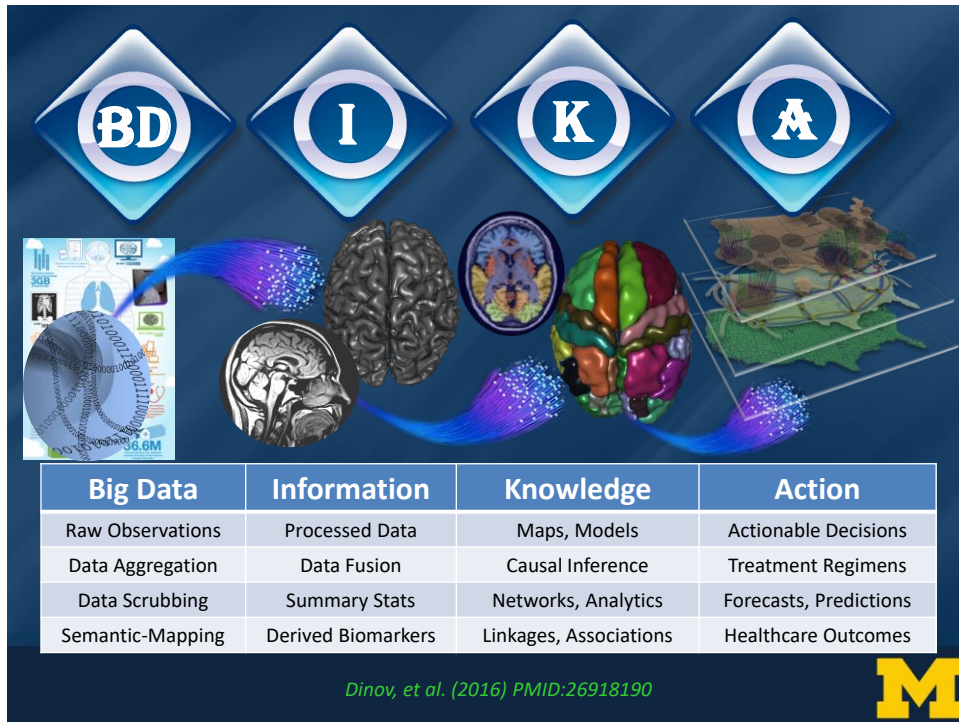
BD Dimensions	Tools
Size	Harvesting and management of vast amounts of data
Complexity	Wranglers for dealing with heterogeneous data
Incongruency	Tools for data harmonization and aggregation
Multi-source	Transfer and joint-modeling of disparate features
Time	Longitudinal data modeling
Multi-scale	Macro to meso to micro scale observations
Incomplete	Reliable management of missing data

Example: analyzing observational data of 1,000's Parkinson's disease patients based on 10,000's signature biomarkers derived from multi-source imaging, genetics, clinical, physiologic, phenomics and demographic data elements.

Software developments, student training, service platforms and methodological advances associated with the Big Data Discovery Science all present existing opportunities for learners, educators, researchers, practitioners and policy makers

Dinov, et al. (2016) PMID:26918190
Dinov (2018) Springer





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Slides Online:
"SOCR News"

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*SOCR TensorFlow Dimension Reduction
UK Biobank Imaging, Genetics, & Clinical Data
(n=9,914, k=3,297)*

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http://socr.umich.edu/HTML5/SOCR_TensorBoard_UKBB