

Deep Learning for Analysis of Big Data

Big Data

Big Data is generally a massive amount of data with specific complexities so-called 4Vs factors including: Volume, Variety, Velocity and Veracity .

Big Data in Smart Grids

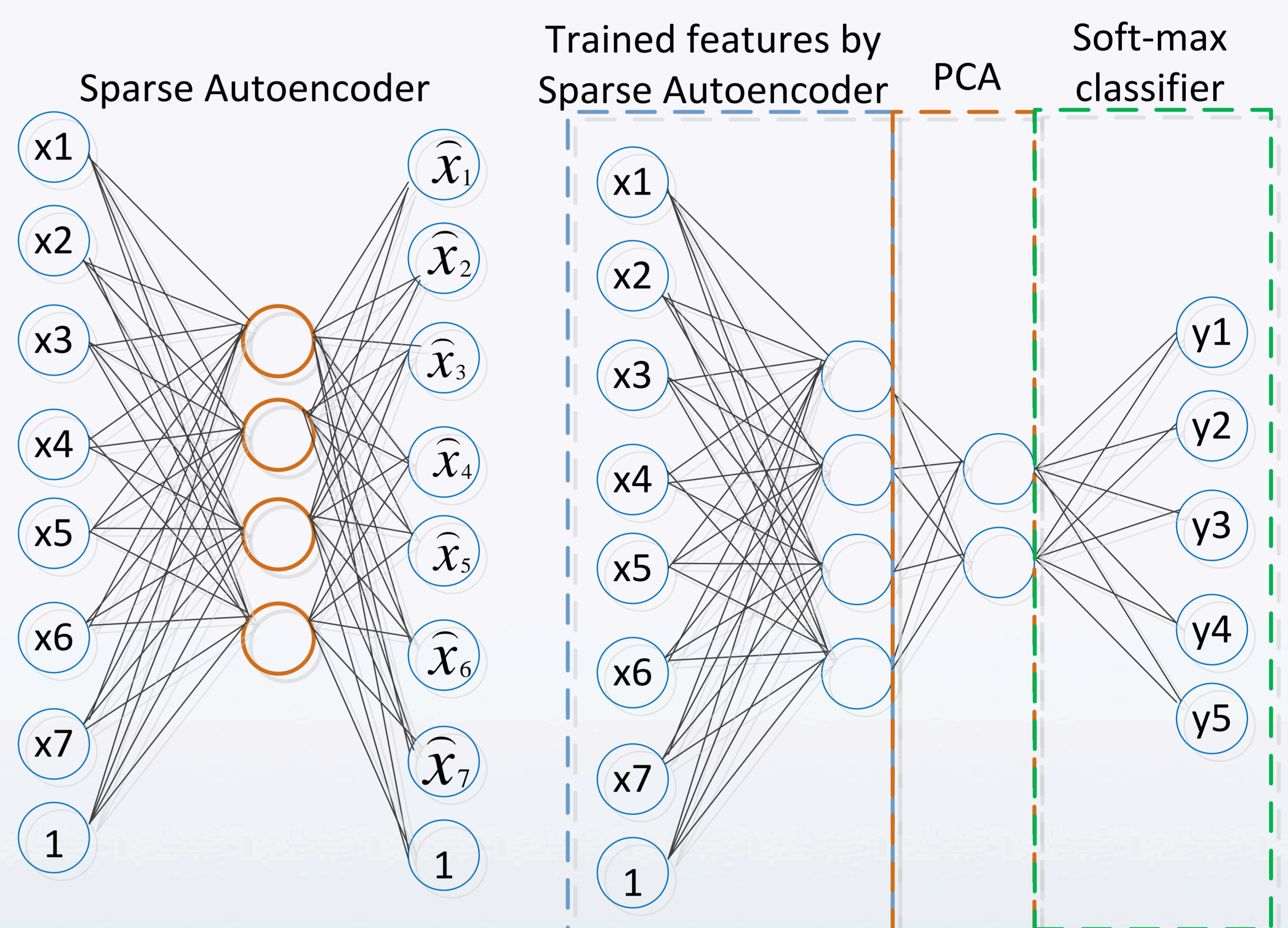
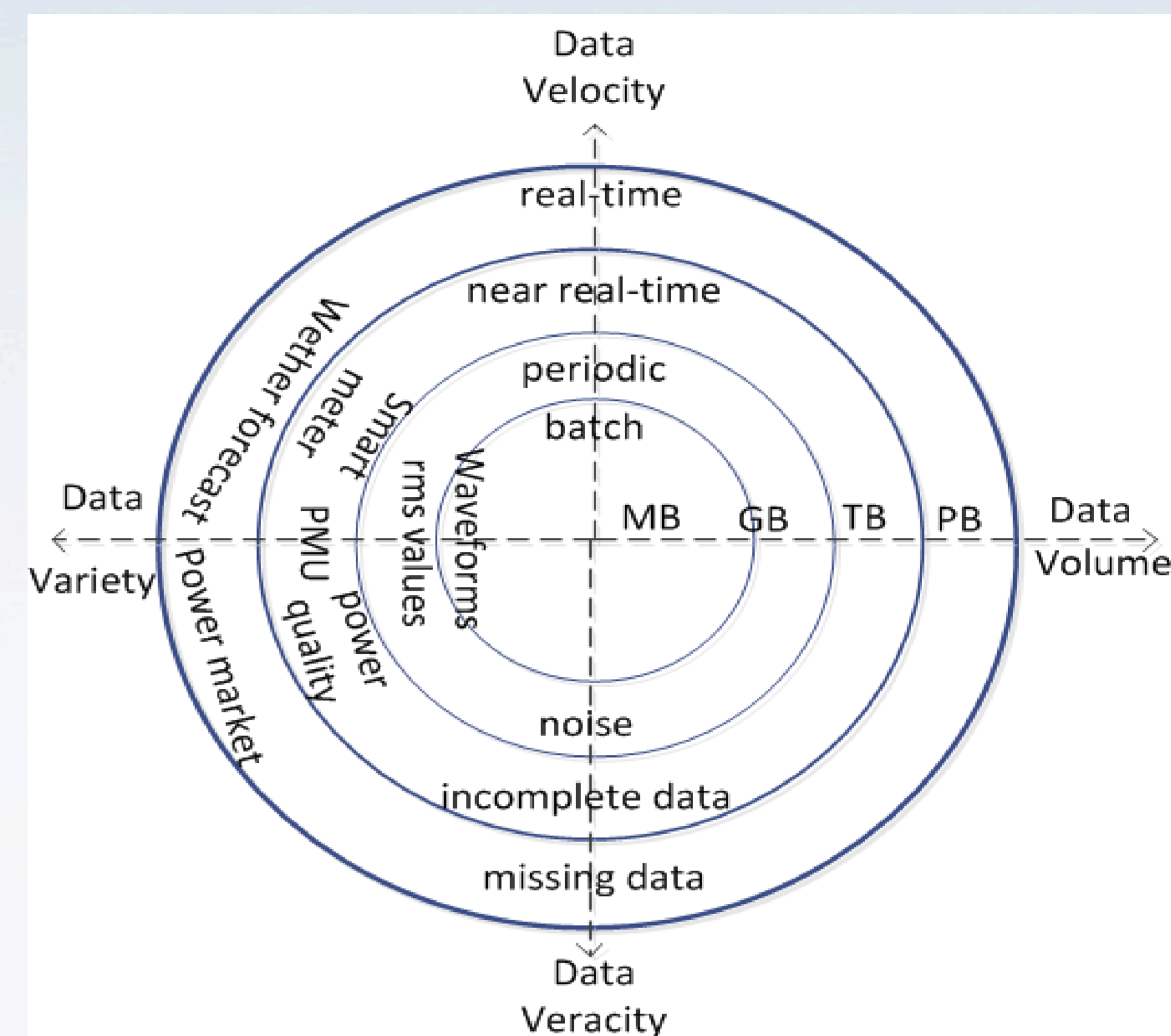
- Data from Smart meters and power quality monitoring equipment.
- Data from Automated Revenue Metering (ARM) system.
- Data from management, control and maintenance of device and equipment.
- Data from operating utilities.

Deep Learning Algorithms

Deep learning algorithms are deep architecture of consecutive layers. The nonlinear transformation on input variables presents the output variables in each layer.

Deep Learning Application in Big Data

- Data Integration and validation
 - ✓Data selection
 - ✓Data quality / transform
 - ✓Data visualization
- Move from Raw data to Semantic data
 - ✓Event detection
 - ✓Event quantification
 - ✓Event qualification
- Turning Semantic Data to Actionable Data
 - ✓Notification
 - ✓Control / protection signal
 - ✓Knowledge Discovery



[1] "Managing Big Data for Smart Grids and Smart Meters", available on: www.ibm.com/software/data/industry/energy.

[2] M. M Najafabadi and et.al., "Deep learning applications and challenges in big data analytics", *Big Data*, 2015.