

Medical and Biological Data Science Application

Dimitris Metaxas

Board of Governors Professor

Director CBIM and NSF IUCRC CARTA

Computer Science

dnm@cs.rutgers.edu

- Medical/biological datasets necessary for method development
- Have been working over 30 years in this domain and requires addressing the complex and variations across patients including their pathologies
- Not just data driven! Data, model-based and knowledge incorporation in decision process
- Spatio-temporal decision making
- Human-explainable solutions
- Robust solutions with minimal false positives or false negatives
- Validation methods including the use of experts
- Segmentation, registration, disease diagnosis
- Eventually ability to discover new diseases
- Applications in all areas of medical and biological data
- Emphasis on tool development to go beyond qualitative human analytics.
- Need for collaboration with physicians, biologists and in general domain experts
- Huge potential for collaboration with Industry such as big Pharma, as well as on startups

- Novel Methods and Novel Applications needed

