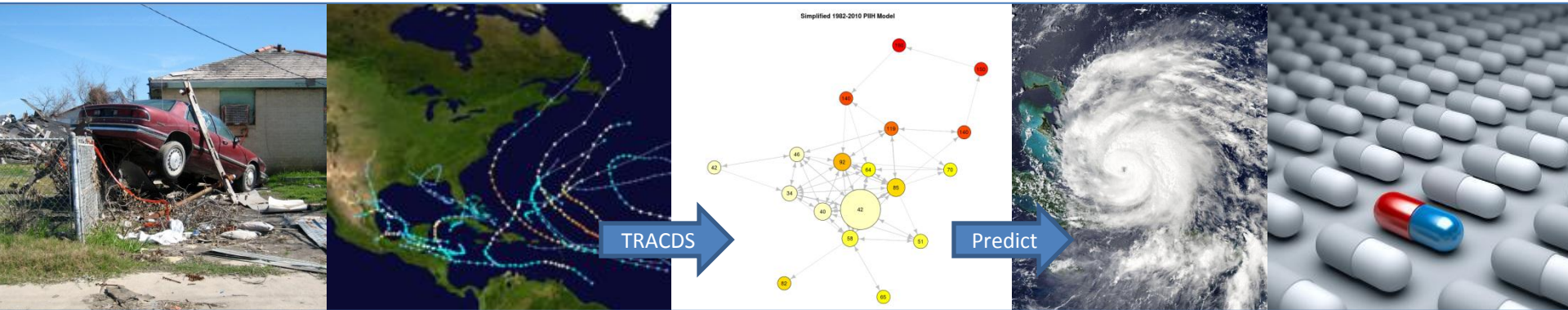


# Data Stream Mining and Analytics: From Hurricanes to Personalized Medicine

*Extend state-of-the-art data stream clustering to model temporal/order aspects of stream data to improve hurricane intensity prediction and enable personalized medicine.*

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## Project Goals and Tasks

- Extend state-of-the-art data stream clustering algorithms to model temporal aspects of stream data. This allows for effective visualization, classification and prediction of future events.
- Apply the approach to the extremely difficult problem of hurricane intensity prediction.

- Apply the approach to develop fast and inexpensive devices for microbiome-based health screening to enable personalized medicine.

## Approach

- Develop the theoretical foundation of Temporal Relationships Among Clusters for Massive Data Streams (TRACDS) and quasi-alignment for rapid genetic classification.

## Milestones

- Expand the TRACDS framework.
- Investigate the statistical foundation of quasi-alignment for genetics sequences.
- Develop a hurricane prediction model tested against NOAA models.
- Design a genetics sequence model database for the Human Microbiome Project (HMP).
- Make code available (R packages rEMM and QuasiAlign).

## IDA@SMU - Intelligent Data Analysis Lab

- 2 faculty, 4 collaborators and 7 student researchers.
- Other areas of interest are bioinformatics, recommender systems and business analytics.
- Current funding: NSF and NIH

<http://lyle.smu.edu/IDA/>