

Research Challenge Proposal

Date: 10/07/2017

Team Number: 04

Team Name: F4

Problem Title: (One Sentence description of the challenge)

Anomaly and Trajectory Detection in accidents claims data.

Research Objectives: (Include broad aims as well as specific research questions to be addressed)

• The objective of this research is to ^{cluster} ~~predict~~ ^{evolution} patient trajectories based on available ^{traffic accident} data and building models on ^{those} clusters to interpret them, in order to minimize treatment costs and improve their quality.

Challenge: Incorporating partially ordered hierarchical data which include treatment item codes for patients.

Approach: (Methodologies and methods to be followed; refer to known research or literature if appropriate)

- Hospital cost is driven by the length of stay.
- (1). Interpretable Model (e.g. Decision tree based / Random forest based)
 - trained upon data for the day over (T-d) days based features. [Assumption: Significant no. of diverse patient records are there in the database for the day]
 - feature importances, feature relationships can be obtained to make decisions for treatment improvement
- (2). RNN based model - which respect the order of the data while training the NN. (since we use partial sequence data)
 - trained upon all data
 - preserves sequence order in
- (3). Extending the model if readmission data is available.