Mina Moradi Kordmahalleh  
Department: Electrical and Computer Engineering  
Title: “Time Series Prediction with a Partially Connected Artificial Neural Network with Evolvable Topology”  
Major Professor: Dr. Abdollah Homaifar

This research was funded by: National Science Foundation under award number CCF-1029731

**Research Questions / Problems:**
- Modeling the internal dynamics of complex systems using historical observations and predicting their future behavior

**Methods:**
- A partially (non-fully) connected recurrent neural network with evolvable topology is proposed

**Results / Findings:**
- The main objective of this work is forecasting of time series without using a set of time-lagged inputs to be fed into the model.

**Significance / Implications:**
- High accuracy of the trajectory prediction of Atlantic hurricanes
- High accuracy of the prediction and decision making of exchange rate (British pounds against United States dollars)
- The method has been extended to a hierarchical recurrent neural network and successfully applied for the modeling of gene interactions using time-course gene expression data