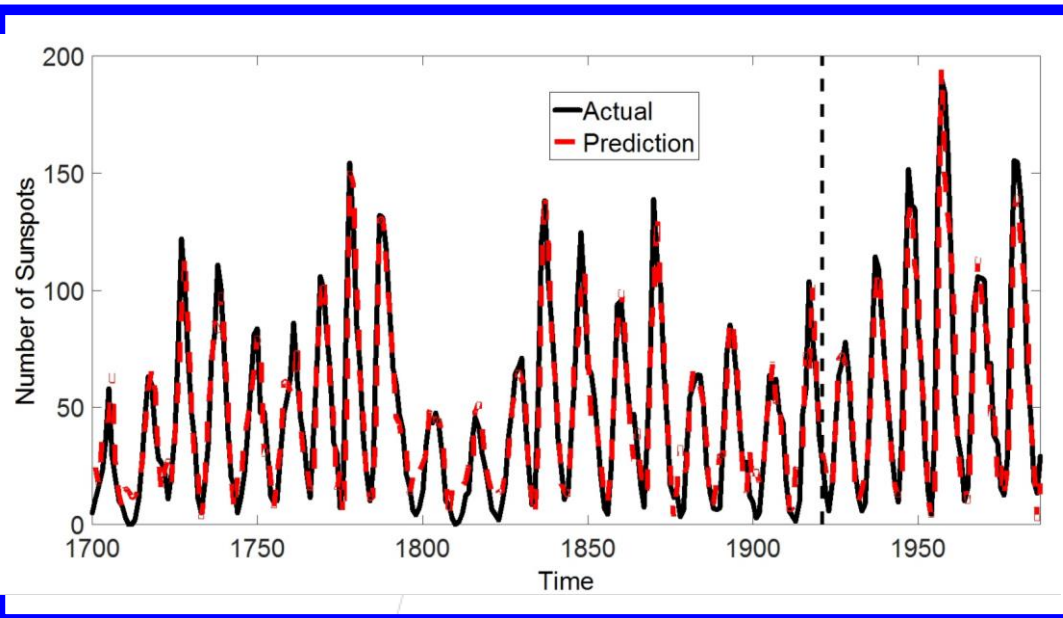


Mina Moradi Kordmahalleh

Department: Electrical and Computer Engineering

*Title: “Time Series Prediction with a
Partially Connected Artificial Neural
Network with Evolvable Topology”*

Major Professor: Dr. Abdollah Homaifar



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