Yash Garg

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Interests

time series analytics, unsupervised learning, representation learning, feature engineering

Accomplishments

Graduate College Doctoral Fellowship (ASU)	2020
Computer Science Doctoral Fellowship (ASU)	2020
ACM Student Grant	2019/2017
Outstanding Mentor Award	2018
Best Poster Presentation	2018

Skills

AI/Machine Learning ..... Tensorflow, PyTorch, Keras, Numpy, Scipy scikit-learn, Pandas
Languages ..... MatLab, Python, R, Java
Databases ..... MongoDB, MySQL, PostgreSQL
Web Technologies ..... JavaScript, jQuery, HTML, CSS

Education

Doctor of Philosophy, Computer Science **Jan'16 – Dec'20**
Arizona State University, Tempe, Arizona
Dissertation Title: On Feature Saliency and Deep Neural Networks

Master of Science, Computer Science **Aug'13 – Dec'15**
Arizona State University, Tempe, Arizona
Thesis Title: On the Effectiveness of Distance Measures for Similarity Search

Bachelor of Engineering (*First with Distinction*), Computer Science **Jul'09 – Jun'13**
Rajiv Gandhi Technological University, Bhopal, India

Work Experience

Machine Learning Researcher – Member of Technical Staff **Jan'21 – Present**
Nokia Bell Labs, Murray Hills, New Jersey

- Automated end-to-end framework for tabular and sequential data processing and modelling

Graduate Research Assistant **Apr'14 – Dec'20**
Arizona State University, Tempe, Arizona

- Developed a principled approach to discover insights from the data to perform **single-shot hyper-parameter search** and **retraining-free sparsification** of network parameter
- Leveraged **multi-scale patterns** contained in the data to design novel **attention mechanism**, such as localized, cross, and multi-scale multi-head attention, for **multimedia retrieval**

Data Science Intern **Jun'19 – Aug'19**
Nokia Bell Labs, Murray Hills, New Jersey

- Developed an **automated representation** learning framework for rare event detection in streaming time series. Designed a **budgeted** approach to **adaptively** *learn* the **length of buffer window** for learning representation for streaming time series. Patent in review.

Data Science Intern **May'18 – Aug'18**
Eaton Corporation, Milwaukee, Wisconsin

- Designed a **recurrent ensemble model** for **accurate time series forecasting** in high-dimensional sensory networks. Developed a NodeJS based **spatio-temporal visualization** engine for $62k$ sensor spread in $85mi^2$

PATENT

Akyamac, Ahmet, Lehman, Gerald, and *Garg, Yash*, "Apparatus, Method, and System for Providing a Sample Representation for Event Prediction". Filed Jan 8, 2020 (FI). In Review.

PUBLICATIONS

Thesis/Dissertation

Garg, Yash.,"On Feature Saliency and Deep Neural Networks", Ph.D. Dissertation, Arizona State University, December 2020.

Garg, Yash.,"Multi-Variate Time Series Similarity Measures and Their Temporal Robustness Against Temporal Asynchrony", MS Thesis, Arizona State University, December 2015.

Journal

Garg, Yash et al., "Selego: Robust Variate Selection for Accurate Time Series Forecasting", Data Mining and Knowledge Discovery, ECML-PKDD Journal, 2021.

Garg, Yash et. al., "Coupled, Continuous Simulation for Complex Urban Environments". TDS 2021.

Garg, Yash. et al., "DataStorm-FE: A Data- and Decision-Flow and Coordination Engine for Coupled Simulation Ensembles". PVLDB 2018.

Conference

Garg, Yash et al., "XM2A: Multi-Scale Multi-Head Attention with Cross Talk for Multi-Variate Time Series Analytics ". MIPR 2021.

Garg, Yash, Candan, K. Selçuk, "SDMA: Saliency-Driven Mutual Cross Attention". ICPR 2020.

Garg, Yash, et al., "Selego: Leveraging Temporal Features for Robust Variate Selection for Time Series Classification". In Review.

Garg, Yash, Candan, K. Selçuk, "iSparse: Informed Sparsification of Neural Network." ICMR 2020.

Garg, Yash, Candan, K. Selçuk, Sapino, M.L., "SAN: Scale-Space Attention Network", ICDE 2020.

Garg, Yash, Candan, K. Selçuk, "RACKNet: Robust Allocation of Convolutional Kernels in Convolutional Network for Image Classification", ICMR 2019.

Garg, Yash, Poccia, Silvestro Roberto, "On the Effectiveness of Distance Measures for Similarity Search in Multi-Variate Time Series in Sensory Data." ICMR. 2017.

Workshop

Garg Yash et al., "Load-Adaptive Continuous Coupled-Simulation Ensembles with DataStorm and Chameleon", Chameleon Cloud 2019.

Garg, Yash, et al., "NOTES2: Networks-of-Traces for Epidemic Spread Simulations." AAAI, 2015.

Demos

Garg, Yash, et al., "SIMDMS: Data Management and Analysis to Support Decision Making through Large Simulation Ensembles." EDBT, 2017.

Poster

Garg, Yash, Candan, K. Selçuk, "Leveraging Localized Image Features for Single Shot Deep Network Architecture Search", CASCADE BigData Challenges, Techniques, and Applications 2019.