YASH GARG

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Machine Learning Researcher, Nokia Bell Labs
Ph.D. in Computer Science

EDUCATION

Ph.D. in Computer Science *Dec 2020*
Arizona State University, Tempe, Arizona
– Recipient of Graduate Collage Doctoral Fellowship
– Recipient of Computer Science Doctoral Fellowship
– Outstanding Mentor Award
– ACM Student Grant

M.S. in Computer Science *Dec 2015*
Arizona State University, Tempe, Arizona

B.E. in Computer Science & Engineering *June 2013*
Rajiv Gandhi Technological University, Bhopal, India

EXPERIENCE

Nokia Bell Labs Jan 2021 - Present
Machine Learning Researcher *Murray Hills, NJ*

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

Arizona State University May 2015 - Dec 2020
Graduate Research Assistant *Tempe, AZ*

· 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**

Nokia Bell Labs Jun 2019 - Aug 2019
Data Science Intern *Murray Hills, NJ*

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

Eaton Corporation May 2018 - Aug 2018
Data Science Intern *Menomonee Falls, WI*

· Designed a **deep ensemble model** for **time series forecasting** in large-scale sensor network.
· Developed a NodeJS based **spatio-temporal visualization** engine for 1000s sensor.

TECHNICAL STRENGTHS

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

SELECTED PROJECTS

AutoRep: Automated representation learning for data streaming Python

· Developed a novel framework for **streaming data** (over cloud) from remote location for **rare event detection**. Designed a **budgeted** approach to **adaptively** *learn* the **length of buffer window** for learning representation with high variability. Patent in review.

StormViz: An analytics tool for decision-making in hurricane HTML, CSS, JS, MongoDB

· Developed a **cloud-based** *spatio-temporal* **visualization** engine. Stored unstructured data in MongoDB for scalable data storage and indexing. Implemented variety of visualization using Leaflet Maps API

QTagger: Real-time tag recommender for Stack Overflow Questions Python

· Implemented a real-time state-full LSTM-based *top-5* tag recommendation engine for user provide question. Processed 1.6 million questions with 87k potential tags. Performed data wrangling, trained word-2-vec model, and trained a tag deep recommender model

PEER-REVIEWED PUBLICATIONS

⋆ First Author | ⋄ Co Author | + Equal Contribution | `https://yashgarg1232.github.io/research/`

Conferences

⋆ XM2A: Multi-Scale Multi-Head Attention with Cross-Talk, MIPR 2021
⋆ SDMA: Saliency-Driven Mutual Cross Attention, ICPR 2021
⋆ SAN: Scale-Space Attention Network, ICDE 2020
⋆ iSparse: Output Informed Sparsification of Neural Networks, ICMR 2020
⋆ RACKNet: Robust Allocation of Convolutional Kernels in Neural Networks, ICMR 2019
+⋆ On the Effectiveness of Distance Measures for Similarity Search in Sensory Data, ICMR 2017

Journals

⋄ Selego: Robust Variate Selection for Accurate Time Series Forecasting, ECML-PKDD 2021
+ DataStorm: Coupled, Continuous Simulations for Complex Urban Environment, TDS 2021
⋄ DataStorm-FE: A Data and Devision-Flow Engine for Coupled Simulation Ensembles, P-VLDB 2018

Demonstrations

+ SIMDMS:Data Management and Analysis to Support Decision Making Through Large Simulation Ensembles, EDBT 2017

Workshop

+ Load-Adaptive Continuous Coupled-Simulation Ensembles with DataStorm and Chameleon, CC 2019
⋄ NOTES2: Network-of-Traces for Epidemic Spread Simulations, AAAI Workshop, 2015

Dissertation/Thesis

⋆ On Feature Saliency and Deep Neural Networks, Ph.D. Dissertation, ASU 2020
⋆ Multi-Variate Time Series Similarity Measures and their Robustness Against Temporal Asynchrony, MS Thesis, ASU

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.