Suraj Tripathi

Google Scholar

Github

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EDUCATION	**Carnegie Mellon University, Pittsburgh, Pennsylvania**

Master of Language Technologies, School of Computer Science, 2023

Indian Institute of Technology, Delhi

Master of Technology (M.Tech), Computer Science, 2017   CGPA: 8.39/10.00

Jamia Millia Islamia, Delhi

Bachelor of Technology (B.Tech), Computer Science, 2015   CGPA: 9.31/10.00

RESEARCH INTERESTS

Natural Language Understanding, Information Extraction, Vision, Understanding Neural Networks, Multimodal Machine Learning

EXPERIENCE

Samsung Research   (Oct 2017 - Present)

Research Engineer, NLU Team   *Advisors:* Dr. Jithendra Vepa and Adarsh Shekhar

Project Area: *Speech Analysis, Text and Image Classification, Coreference Resolution, Language Generation, Automatic Speech Recognition*

Concepts: *Generative Adversarial Networks (**GANs**), Deep Neural Networks (**DNNs**), Transfer Learning, Semi-supervised Learning, Multi-Task Learning (**MTL**)*

Achievements: *Samsung Citizen Award under **Technology Excellence** category, **Microsoft AI Challenge** India 2018, Phase-1 Rank: 2nd — Phase-2 Rank : 6th (Over 2000 teams participated), **C-Lab Award**: Top 7 among 250+ teams, **Excellence Award**: For outstanding contribution in NLU design and development*

MAJOR PUBLICATIONS

Visual Context-aware Convolution Filters for Transformation-invariant Neural Network

Suraj Tripathi, *Abhay Kumar, Chirag Singh*

18th International Conference on Advances in Mobile Computing Multimedia (MoMM2020)

Speech Emotion Recognition using Spectrogram and Phoneme Embedding

Promod Yenigalla, Abhay Kumar, **Suraj Tripathi**, *Chirag Singh, Sibsambhu Kar, Jithendra Vepa*

INTERSPEECH, *2018*

Learning Discriminative features using Center Loss and Reconstruction as Regularizer for Speech Emotion Recognition

Suraj Tripathi, *Abhiram Ramesh, Abhay Kumar, Chirag Singh, Promod Yenigalla*

*IJCAI Workshop on Artificial Intelligence in Affective Computing (**IJCAI AffComp**), Proceedings of Machine Learning Research (**PMLR**), 2019*

Smaller Models, Better Generalization

Mayank Sharma, **Suraj Tripathi**, *Abhimanyu Dubey, Jayadeva, Sai Guruju, Nihal*

In progress

MTCNET: Multi-task Learning Paradigm for Crowd Count Estimation

Abhay Kumar, Nishant Jain, **Suraj Tripathi**, *Chirag Singh, Kamal Krishna*

*16th IEEE International Conference on Advanced Video and Signal-based Surveillance (**AVSS**) [ACCEPTED], 2019*

Bidirectional Transformer Based Multi-Task Learning for Natural Language Understanding

Suraj Tripathi, *Chirag Singh, Abhay Kumar, Chandan Pandey, Nishant Jain*

*24th International Conference on Applications of Natural Language to Information Systems (**NLDB**) [28% Acceptance rate], 2019*

OTHER PUBLICATIONS	*Stance Detection in Code-Mixed Hindi-English Social Media Data using Multi-Task Learning*
	Suraj Tripathi, *Sushmitha Reddy Sane, Koushik Reddy Sane, Radhika Mamidi*
	*In NAACL, 10th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (**NAACL WASSA**) [**Best Paper Award**], 2019*
	From Fully Supervised to Zero Shot Settings for Twitter Hashtag Recommendation
	*Abhay Kumar, Nishant Jain, **Suraj Tripathi**, Chirag Singh*
	*20th International Conference on Computational Linguistics and Intelligent Text Processing (**CICLing**), 2019*

THESIS	*Exploiting Sparsity to attain Faster Run-time Inference and Compressed Deep Neural Network* Advisor: *Prof. Jayadeva*
	Description: *Deep Neural Networks are both computational and memory intensive, making them difficult to deploy on mobile systems with limited hardware resources. Here, I specifically worked on exploiting the existing redundancies in DNN weights and neural activations in order to maximize compression. I introduced a novel loss function to achieve sparsity by minimizing a convex upper bound on the Vapnik-Chervonenkis (VC) dimension. I also analyzed the effectiveness of our proposed loss function in combination with techniques like quantization and pruning.*

INTERNSHIPS	**Staqu Technologies** *(Jun 2016 - July 2016)*
	Research Intern, Machine Learning Team
	Project Area: *Fashion trend analysis using deep learning techniques. Trained Convolutional Neural Network in Caffe framework with Fashion144k dataset to predict the fashionability Score of an image and suggest subtle improvements the user could make to improve his/her appeal.*
	Trexquant Investment LP *(Mar 2017 - Sept 2017)*
	Alpha Researcher
	Project Area: *Responsible for conceptualizing and implementing market-neutral, medium-frequency quantitative trading strategies. Investigating and implementing recent academic research and applying machine learning techniques to alpha discovery and portfolio construction.*

RELEVANT COURSES	*Machine Learning, Artificial Intelligence, Probabilistic Graphical Models, Computer Graphics, Social Network Analysis, Soft Computing, Language Processor*

TEACHING	*IIT Delhi COL 774, Machine Learning*
	IIT Delhi CSL 374, Computer Networks
	IIT Delhi CSL101, Introduction to Computers and Programming

ACHIEVEMENTS	*All India Rank 182 (99.92 percentile) in GATE - CSE 2015*

TECHNICAL SKILLS	*Experienced in C++, Python, Java, MATLAB and Unix Shell.*
	Extensive experience with TensorFlow, PyTorch, Caffe, Keras, STL and OpenCV.