Vignesh Kothapalli

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Education

- **New York University, Courant Institute of Mathematical Sciences** Sep 2021 - Present
  Master of Science in Computer Science, GPA: 4.0/4.0
  Research Interest: Geometric Deep Learning, Representation Learning
- **Indian Institute of Technology Guwahati** Jul 2014 – May 2018
  B.Tech in Electronics and Communication Engineering, GPA: 8.2/10.0

Publications

- **Abnormal Event Detection on BMTT-PETS 2017 Surveillance Challenge** [PDF]
  Vignesh Kothapalli, Gaurav Yadav, and Amit Sethi.
  IEEE Computer Vision and Pattern Recognition 2017 Workshops.
- **Edge detection using fractional derivatives and information sets** [PDF]
  Vignesh Kothapalli, Shaveta Arora, Madasu Hanmandlu.
  SPIE Journal of Electronic Imaging 2018.
- **Robust Recognition of Tone Specified Mizo Digits Using CNN-LSTM and Nonlinear Spectral Resolution** [PDF]
  Vignesh Kothapalli, Biswajit Dev Sarma, Abhishek Dey, Parismita Gogoi, Wendy Lalhminghlui, Priyankoo Sarmah, SR Mahadeva Prasanna, SR Nirmala, Rohit Sinha.
  IEEE INDICON - 2018
- **Binary Document Image Super Resolution for Improved Readability and OCR Performance**
  Ram Krishna Pandey, **Vignesh Kothapalli**, A.G.Ramakrishnan and Chandrahasa Bolla. [PDF]
  arXiv:1812.02475 - 2018.

Work Experience

- **IBM Chief Information Office, Bangalore, India** July 2018 – Aug 2021
  Software Developer, Manager: Shobhit Rastogi, Arun Kumar (IBM Research-AI)
  - Designed and deployed a dependency graph based event correlation framework to facilitate the root-cause analysis of failures in distributed data platforms.
  - Employed MLOps techniques to train and serve auto-encoder based deep neural network models for detecting anomalies in Kafka, Solr and HDFS telemetry data. The framework aided in reducing the MTTR by 80%.
  - Built auto-regressive time-series models using variational inference techniques for predicting the throughput and resource consumption of data pipelines.
- **Kovid Research Labs (acquired by Kaliber.ai), IIT Guwahati, India** Jan 2018 – May 2018
  Research Intern, Manager: Debadyuthi Roy Chowdhury
  - Worked on audio tone classifiers using time-distributed CNN-LSTM models on sliding window spectrograms.
- **Indian Institute of Science, Bangalore, India** May 2017 – July 2017
  Research Intern, Advisor: Dr.A.G.Ramakrishnan
  - Developed sub-pixel convolution based super-resolution models for document image quality enhancement.
  - Our best performing model improved the OCR accuracy of low-resolution test images by 140%.
- **Indian Institute of Technology Delhi, Delhi, India** May 2016 – July 2016
  Research Intern, Advisor: Dr.M.Hanmandlu
  - Worked on edge detection techniques in digital images using fractional derivatives and information sets.

Professional Service

- Reviewer for **IEEE Transactions on Cybernetics**
- Reviewer for **IEEE Transactions on Industrial Informatics**

Selected Projects

- **Tensorflow** (Open-source)
  - An open-source platform for machine learning. Contributor of *tensorflow* and maintainer of *tensorflow-io*.
  - Contributed APIs to train keras models from data sources such as Kafka, Elasticsearch and MongoDB. Additionally, made various contributions to *tf.data*.
- **Facial expression recognition in videos using curriculum learning techniques**
  - Designed and trained ResNet & VGG based neural networks using curriculum learning techniques to recognize facial expressions from videos of the EmotiW-2017 dataset.

Technical Skills

- **Languages:** C, C++, Python, Scala
- **Machine Learning Technologies:** Tensorflow, Keras, PyTorch, Scikit-learn, OpenCV, Numpy
- **Tools/Frameworks:** Docker, Kubernetes, Flask, MySQL, MongoDB, Git, Kafka, Spark, Impala, Airflow, Streamsets, MLFlow, Jenkins

Honors and Awards

- Google Open Source Peer Bonus Award (TensorFlow) - 2021
- IBM Managers Choice Award - 2018, 2019
- 'Hack in the East' (Hackathon) organized by IIT Guwahati, Winner - 2018
- Merit cum Means scholarship by IIT Guwahati - 2015, 2016, 2017
- Merit based scholarship from Govt of Telangana - 2015, 2016, 2017