

Bharathkumar “Tiny” Ramachandra

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SUMMARY

Doctoral candidate in machine learning and computer vision, mathematically inclined and interested in applied research. Ability to explain complex concepts in a precise and concise manner.

WORK EXPERIENCE

CV Research Intern Mitsubishi Electric Research Labs [Summer 2018, 2019]

- Helped develop a new benchmark dataset, new evaluation protocol and baseline algorithms for video anomaly detection hoping to nudge research in a more meaningful direction.
- Helped develop a novel video anomaly detection algorithm that learns a distance function with a Siamese neural network and subsequently scores video patches in a target dataset.

Data Science Intern Samsung Research America [Summer 2017]

- Implemented a classification pipeline on a large dataset using Spark for user profiling based on transaction information from Samsung Mobile Pay.
- Debugged an issue with AI assistant Bixby’s deep natural language processing unit in Theano.

Research Assistant North Carolina State University [June 2015 – Present]

- Developed novel statistical anomaly localization technique for climate data.
- Built a convolutional auto-encoder to perform anomaly detection in videos using TensorFlow.

EDUCATION

Ph.D., Computer Science North Carolina State University GPA 4.0, [Fall 2014 – Present]

- Coursework: Advanced Machine Learning, Foundations of Data Science, Automated Learning, Artificial Intelligence, Graph Theory, Algorithm Design and Analysis.

B.E.(Hons.), Computer Science BITS-Pilani, Dubai GPA 3.51, [2010 – 2014]

SELECT PUBLICATIONS ([Google Scholar](#))

- Ramachandra, Bharathkumar, et al. "Detecting Extreme Events in Gridded Climate Data." *Procedia Computer Science* 80 (2016): 2397-2401. **(Best Paper Award)**
- Ramachandra, Bharathkumar, et al. "Anomalous Cluster Detection in Spatio-Temporal Meteorological Fields". *Statistical Analysis and Data Mining* (2018).
- Ramachandra, Bharathkumar, and Michael Jones. "Street Scene: A new dataset and evaluation protocol for video anomaly detection." *arXiv preprint arXiv:1902.05872* (under review - 2019).
- Ramachandra, Bharathkumar, et al. "Learning a distance function with a Siamese network to localize anomalies in videos." *arXiv preprint* (under review - 2019).

OTHER PROJECTS ([GitHub](#))

- Implemented manifold-aware density estimator using Python, Manifold Parzen Windows, which outperforms the naïve Parzen Windows estimator.
- Implemented the G-means clustering algorithm using R, that can automatically pick an optimal number of clusters in a domain independent fashion.
- Parallelized Gaussian process regression on GPUs using CUDA dynamic parallelism.

LANGUAGES AND TECHNOLOGIES

- Python; TensorFlow; Matlab; R; C++; CUDA C; Apache Spark