Vikram Murali Mandikal

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Education

The University of Texas at Austin — Austin, Texas
Master of Science in Computer Science — Aug 2019 - May 2021 (Expected)

National Institute of Technology Karnataka (NITK), Surathkal
Bachelor of Technology in Information Technology — Surathkal, India
GPA: 9.79/10, Gold Medalist (Rank: 1/104) — Aug 2015 - May 2019

Publications

1. Don Dennis, Durmus Alp Emre Acar, **Vikram Mandikal**, Vinu Sankar Sadasivan, Venkatesh Saligrama, Harsha Vardhan Simhadri, Prateek Jain, *" Shallow RNN: Accurate Time-series Classification on Resource Constrained Devices"*, Conference on Neural Information Processing Systems (NeurIPS), 2019
2. **Vikram Mandikal**, Steffen Wolf, *"A GAN framework for Instance Segmentation using the Mutex Watershed Algorithm"*, Smooth Games Optimization & Machine Learning Workshop, Neural Information Processing Systems conference (NeurIPS) 2018, Accepted for Spotlight presentation.
3. **Vikram Mandikal**, Aditya Anantharaman, Suhas B S and Sowmya Kamath, *"An Approach for Multi-modal Medical Image Retrieval using Latent Dirichlet Allocation"*, ACM India KDD CoDS-COMAD 2019 (Oral Presentation) · A short version accepted at the AI for Social Good Workshop, Neural Information Processing Systems conference (NeurIPS) 2018.
4. **Vikram Mandikal***, Aditya Anantharaman*, Suhas B S*, Ashwin TS and Ram Mohana Reddy, *"Kinect Based Suspicious Posture Recognition for Real-Time Home Security Applications"*, IEEE India Council International Conference (INDICON) 2018. * equal contribution

Past Internships

Microsoft Research — Bangalore, India
Research Intern, Intelligent Devices Expedition group — August 2018 to December 2018
Advisors: Dr. Harsha Simhadri and Dr. Prateek Jain — and May 2019 to July 2019

- Worked on developing resource efficient machine learning algorithms which can be deployed on edge devices, specifically for keyword detection in speech and gesture recognition.
- Developed a novel meta learning algorithm which enables RNNs to make rolling predictions. This reduces the amortized computational complexity by an order of 100 and also improves the performance when compared to an RNN trained with a regular training routine.
- Also contributed to the Shallow RNN project which is published at **NeurIPS 2019** by designing shallow RNN based models for speech transcription.

Heidelberg Collaboratory of Image Processing, University of Heidelberg
Research Intern, Funded by DAAD WISE Fellowship — Heidelberg, Germany
Advisor: Prof. Fred Hamprecht — May 2018 to July 2018

- Designed a GAN framework for instance segmentation using the Mutex Watershed algorithm.
- Developed a novel smooth auxiliary loss which stabilized the GAN training and improved the performance. This work has been accepted at the **SGO&ML NeurIPS Workshop 2018**.

Video Analytics Lab, Indian Institute of Science
Research Intern — Bangalore, India
Advisor : Dr.Venkatesh Babu — May 2017 to July 2017

- Developed code for Spiking Neural Networks (SNNs) in Theano framework - this is one of the first implementation of SNN in any tensor-based framework.
- Spiking neural networks are biologically plausible neural networks which learn through Spike Time Dependent Plasticity (STDP) - an alternate to gradient descent.

Teaching Experience

TA for Advanced Predicting Modelling - a graduate course by Prof. Joydeep Ghosh — Fall 2019

Software Development Project

Fund management software for purchase department, NITK *PHP, SQL, HTML* [Github]

- The application is designed to handle the formalities and procedures involved in managing the funds allocated for various projects.
- It is currently being used by the accountants at the purchase department of NITK.

Academic Achievements and Awards

- Awarded Huawei Scholarship for Excellence for three consecutive years (2017-2019).
- Awarded the DAAD WISE fellowship to pursue a summer research internship in Germany.
- University Gold Medalist - Information Technology, Batch of 2019.
- Awarded National Talent Search Scholarship by NCERT. A national-level scholarship program in India to identify and recognize students with high intellect and academic talent.
- Qualified Regional Mathematics Olympiad (RMO) - among the thirty students who qualified in the state (Karnataka). RMO is a proof-based mathematics exam, equivalent to the AMC12 and AIME in the US.

Relavant Coursework

Graduate coursework at UT Austin: Natural Language Processing, Numerical Analysis: Linear Algebra, Convex Optimization

Undergraduate coursework at NITK: Linear Algebra and Matrices, Soft Computing, Design and Analysis of Algorithms, Computer Vision, Information Retrieval, Semantic Web Technologies, Time Series Analysis

Programming Skills

Deep Learning Frameworks:	TensorFlow, PyTorch, Theano
Languages and Scripts:	C++, C, Python, Java, HTML, CSS, Javascript, MySQL, Bash
Tools:	Android Studio, OpenGL, Flask, Git