Vamshi Teja

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Education

- **Indian Institute of Technology Hyderabad** — Hyderabad, India
  Bachelor of Technology in Electrical and Computer Science Engineering; ***GPA: 9.15/10*** — *Aug. 2015 – Present*
- **Narayana Junior College** — Hyderabad, India
  Senior Secondary School, Telangana Board; ***98.5%*** — *June. 2013 – May. 2015*
- **Keshava Reddy Concept School** — Hyderabad, India
  Secondary School, Andhra Pradesh Board; ***GPA: 9.7/10*** — *June. 2012 – May. 2013*

Professional Experience

- **RCAST, The University of Tokyo** — Tokyo, Japan
  Research Intern Under Dr. Kumiko Tanaka-Ishii — *July. 2018*
  - Worked on analyzing evaluation of Language Models(LMs) using Neural Language Models.
  - Used state-of-the-art Neural LMs to evaluate LMs spanning all performance levels.
  - Arrived at conclusions to effectively use this criterion. *Project presentation*
- **Philips Innovation Campus** — Bangalore, India
  Summer Internship, Manager: Dr. Sunil Kumar Vuppala — *May. 2018 - June. 2018*
  - Worked on unsupervised classification using Generative Adversarial Networks(GAN's) on Medical Images.
  - Able to extract linearly separable features on a Limited Breast Cancer(Mammography) Dataset.
  - Traditional Clustering on these features performed on par with supervised approaches.
- **Mobiliya(A Quest Global Company)** — Bangalore, India
  Summer Internship, Manager: Raghu Sesha Iyengar — *June. 2017-July. 2017*
  - Worked on Facial Emotion Recognition from videos using CNNs and RNNs.
  - Implemented Hierarchical Attention Networks on IMDB Review Dataset for scoring reviews.
  - Worked on synthesis of Images from text descriptions(Text-to-Img) using GANs.
- **GE Appliances** — Hyderabad, India
  UT Austin & IITH - Industrial Project — *June. 2016 - July. 2016*
  - As a part of Advanced Embedded Systems course we did our Industrial project with GE. Worked on making GE Appliances Smart(Refrigrators, Washing Machine,) by connecting them over Internet.
  - Worked with HTTP and MQTT protocols using raspberry pi(as local server) as a local server.

Publications

- Joseph K J, **Vamshi Teja R**, Krishnakant Singh, V. Balasubramanian, *Submodular Batch Selection for Training Deep Neural Networks*, Proceedings of International Joint Conference on Artificial Intelligence (**IJCAI19**), Aug 2019.
- **Vamshi Teja R**, Shanmukh Reddy Manne, Abhilash Goud, Mohammed Abdul Rasheed, Kunal K Dansingani, Jay Chhablani, Kiran Kumar Vupparaboina, Soumya Jana, *Classification and Quantification of Retinal Cysts in OCT B-Scans: Efficacy of Machine Learning Methods*, Proceedings of Engineering in Medicine and Biology (**EMBC'19**), July 2019.

Academic Projects

- **SubModular Data Loader** — *Project Report*
  Under Dr. Vineeth N Balasubramanian, Dept of CSE, IITH. — *October. 2018 - Present*
  - Built an optimized Submodular Data Loader(SMDL) for mini-batch selection using Distributed Lazier than Lazy Greedy algorithm for subset selection using submodular score function.
  - Beaten SGD with Random sampling on CIFAR and SVHN datasets for Image Classification Task.

- **Disentanglement using Factor-VAE for Better Taskonomy**
  Under Dr. Vineeth N Balasubramanian, Dept of CSE, IITH *August. 2018 - November. 2018*
  - Goal is to solve a set of visual tasks without explicitly training all of them. Came up with a novel way to perform task-transfer reducing computational complexity as compared to Taskonomy-Original Approach.
  - Achieved state of the art classification results on SVHN and CIFAR10 datasets using our architecture in the process.
- **Classification and Quantification of SRF/PED from OCT Scans** *Project Report*
  Under Dr.Soumya Jana, Dept of EE, IITH. (Submitted to EMBC 2019) *Jan. 2018 - April. 2018*
  - The objective is to detect and quantify retinal-fluid based disorders to assist ophthalmologists. Developed a two-step approach, detection followed by segmentation.
  - Used Ensemble Methods for classification and deep learning methods for segmentation. Achieved dice score of 0.92 and could detect even small fluid regions.
- **Recommendation Systems using deep learning**
  Under Dr. Srijith P.K, Dept of CSE, IITH *January. 2018 - April. 2018*
  - Built music recommendation engine where user histories are modeled as sessions containing (begin time, end time, activities) tuples.
  - Used techniques from survival analysis and LSTM networks. Improved Mean Absolute Error by 8%.
- **Land Cover Segmentation from High Resolution Satellite Images** *Project Presentation*
  Deep Learning course Project *March. 2018 - April. 2018*
  - Studied performance of state-of-the-art semantic-segmentation models on patches of Satellite Images(due to computational constraints).
  - Achieved the best performance with modified DeepLab-v3 architecture. Achieved a dice score of 0.68 - one of the top scores in the CVPR18-Workshop competition.
- **Finding the Right Social Media for Questions** *Project Presentation*
  Data Mining Course project *March. 2018 - April. 2018*
  - Given a query, the goal is to redirect to the right social media site which can answer the query.
  - We followed a three-step approach which involves modeling of query, site followed by ranking.
- **Face Emotion Recognition** *Project Presentation*
  Under Dr. Sumohana Channappayya, Dept of EE, IITH *March. 2017 - April. 2017*
  - Explored several filters based and ML/DL approaches. Achieved best results with CNNs.
  - Fine-tuning pre-trained networks trained on Imagenet with FER2013 dataset gave results on par with CNN's(trained from scratch). Best accuracy we achieved is 55%.
- **Theft Detection**
  Under Dr. Siva Vanjari, Dept of EE, IITH *Oct. 2016 - Dec. 2016*
  - Developed an application that alerts if any motion is detected in a room and sends the picture to Dropbox.
  - Used background subtraction algorithm and significantly increased fps by exploiting multithreading for capturing and processing of images. Able to stream live video to localhost.

Technical Skills

- **Languages**: Python, C++, C, PostgreSQL, Assembly, LaTeX
- **Softwares and Packages**: Tensorflow, PyTorch, Keras, OpenCV, GPy, Matlab, Caffe, Modelsim, Arduino, Raspberry Pi, TM4C Launchpad, Microsoft Office
- **Operating Systems**: Ubuntu, Windows, Mac OSx

Achievements

- Our Team Secured 6^{th} position globally in **IEEE VIP-CUP** on Lung Cancer Segmentation.
- Selected for **Sakura Science Program** by Japanese Government.
- Secured 32nd rank in **McKinsey Analytics Hackathon** out of around 3k participants.
- Secured AIR 3925 in IIT-JEE 2015, AIR 1541 in JEE-MAINS 2015 and State Rank 521 in TS-EAMCET 2015.
- Received **RAJYAPURASKAR SCOUT** Award in 2010.

Positions of Responsibility

- **Teaching Assistant** for Matrix Analysis, Electric Circuits, Magnetic Circuits, Device Physics.
- **Sunshine Mentor** in sophomore year for freshmen students.
- Core-member of Lamba club(Development club of IITH).
- Active NSS Volunteer.

References

- Available on request.