

Shreekantha Nadig

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EDUCATION

MASTER OF SCIENCE BY RESEARCH - DATA SCIENCES | INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY - BANGALORE Bengaluru, KA | Jan 2017 - Present
GPA: 3.67/4

BACHELOR OF ENGINEERING - TELECOMMUNICATION ENGINEERING | JAWAHARLAL NEHRU NATIONAL COLLEGE OF ENGINEERING Shivamogga, KA | Aug 2011 - Jul 2015
GPA: 75/100

MS THESIS

ATTENTION BASED END-TO-END FRAMEWORKS FOR ASR | ESPNET, KALDI-ASR, PYTORCH, TENSORFLOW, KERAS, CLOUD COMPUTING Bengaluru, KA | Jan 2017 – Present

- Developing state-of-the-art systems for end-to-end ASR using Joint CTC and Attention-based models
- Study how pure data-driven models can be blended with knowledge-based models for reducing model complexity, faster training/inference and extracting deeper insights into speech recognition
- Use of ASR toolkits like kaldi-asr, ESPnet with PyTorch and TensorFlow to build end-to-end ASR models
- Study of various Attention mechanisms and how they can be modelled efficiently for interpretability, explainability of end-to-end models.
- Optimal selection of deep neural network model architecture for a specific problem

OPEN SOURCE CONTRIBUTIONS

ESPNET | TIMIT RECIPE AND DATA PREPARATION FOR PHONEME/CHARACTER LEVEL TRANSCRIPTS

EXPERIENCE

MACHINE LEARNING INTERN - ASR | OBSERVE.AI Bengaluru, KA | May 2019 – Present

- Building End-to-end ASR systems with Joint CTC and Attention on large datasets
- ASR experiments with different Attention mechanisms (coverage, location-aware)
- Large dataset preparation using Bash, Python
- Building ASR at phoneme, character, sub-word and word level
- Architecture exploration and refinement of custom models on customer data

RESEARCH SCHOLAR | IIIT-BANGALORE Bengaluru, KA | Jan 2017 – Present

- Intel AI Academy Student Ambassador | **INTEL NCS, INTEL AI DEVCLOUD, ASR, TENSORFLOW**
- Virtual lab for NPTEL | **DJANGO, EMBEDDED C, HTML, CSS, JAVASCRIPT**
- Graduate Teaching Assistant | **IIIT-BANGALORE, NPTEL** Bengaluru, KA | Jan 2018 – Present
 - Automatic Speech Recognition | **KALDI-ASR, SCIKIT-LEARN, CLOUD COMPUTING**
 - Introduction to Robotics | **PYTHON, ROS, GAZEBOSIM**
 - Digital and the Everyday: from codes to cloud | **MOOC HANDLING, PEOPLE MANAGEMENT**

SVT ENGINEER | SONUS NETWORKS Bengaluru, KA | Aug 2015 – Jan 2017

- Worked as a part of Sustaining SVT on Real-Time communication products Sonus Insight (EMS) and SBC
- Developed automated test frameworks in Python, Perl, Linux and Java
- Worked with CentOS, Red Hat Enterprise Linux and Solaris to develop and test the products
- Developed tools which reduced team effort from many hours to a couple of minutes
- Collaborated with overseas teams in testing/fixing the product for potential security breaches

SKILLS

PROGRAMMING	Python, JavaScript, Bash, C, C++
LIBRARIES	Keras, PyTorch, TensorFlow, scikit-learn, Django, OpenCV
TOOLKITS	kaldi-asr, ESPnet

PROJECTS

END-TO-END ASR: ATTENTION-BASED MODELS | ESPNET, PYTORCH, KALDI-ASR Jul 2018 - Dec 2018

- Understanding of Attention-based models in the End-to-End scenario
- Exploration of ESPnet toolkit and multi-task learning (CTC and Attention)
- Benchmarking various (12) Attention-based models using ESPnet
- Integrating Tensorboard with ESPnet

END-TO-END ASR: CTC MODELS | TENSORFLOW, KALDI-ASR, KERAS, SCIKIT-LEARN Jan 2018 - Jul 2018

- Understanding and implementation of CTC based models for ASR in Keras and TensorFlow
- Implementation of DeepSpeech1, DeepSpeech2 and benchmarking performance
- Feature extraction and data preparation in kaldi-asr
- Porting kaldi RBM, DNN weights from kaldi-asr to TensorFlow/Keras and finetuning

TRANSFER LEARNING ON STACK EXCHANGE TAGS | TENSORFLOW, NLTK Jul 2017 - Dec 2017

https://github.com/sknadig/ML1_project

- Predicting tags on unseen data with models trained from a different domain
- tf-idf and Deep Belief Networks bottleneck features for training
- t-SNE and other methods to demonstrate feature learning

IMAGE PROCESSING BASED LUNG CANCER DETECTION FROM LOW-DOSE CT SCAN IMAGES | SCIKIT-LEARN, CLOUD COMPUTING, PYDICOM Jan 2017 - Jul 2017

<https://github.com/sknadig/KDataScience2017>

- Use of high-resolution lung scans to determine when lesions in the lungs are cancerous
- Challenge of reducing false positive rate, exploring features that best represents the underlying data
- Benchmarking various Statistical Machine Learning models to solve the problem

AN IMAGE PROCESSING TECHNIQUE FOR THE TRANSLATION OF INDIAN SIGN LANGUAGE FINGER-SPELLING TO AUDIO AND TEXT | RASPBERRYPI, OPENCV, SCIKIT-LEARN Jan 2015 - Jul 2015

https://github.com/sknadig/BE_Final

- Real-time detection of Indian Sign Language finger-spelled alphabets to audio and text
- Use of Statistical Machine learning models (SVM) and HOG features
- Development of a product using RaspberryPi, OpenCV and scikit-learn

AWARDS

THIRD PRIZE JUINCUBATOR HACKATHON POWERED BY GMASA Bengaluru, KA | Jul 2017

- Developed a web app "iCarto" - a serious game for urban planning

FIRST PRIZE COMPUTER VISION BASED TOMATO CLASSIFIER PAPYRUS: IEEE-SJCE Mysuru, KA | Mar 2014

- Presented our paper on a Computer Vision technique for classification and segregation of tomatoes based on ripeness level

WORKSHOPS AND INVITED TALKS

TCS THINK LABS END-TO-END AUTOMATIC SPEECH RECOGNITION Bengaluru, KA | Feb 2019

IIIT-B AI READING GROUP ATTENTION MODELS IN SPEECH RECOGNITION Bengaluru, KA | Nov 2018

BMSCE ARTIFICIAL INTELLIGENCE AND DEEP NEURAL NETWORKS WORKSHOP Bengaluru, KA | Sep 2018