

Brij Mohan Lal Srivastava

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RESEARCH INTERESTS

Spoken dialog systems(SDS) , Automatic speech recognition (ASR), Unsupervised/semi-supervised machine learning, Natural language processing (NLP)

EDUCATION

Master of Science, Computer Science & Engineering
International Institute of Information Technology, Hyderabad, TS,
Dec 2013 - June 2016 (expected)
Thesis: Multilingual Spoken Dialog Systems for Handheld Devices
Advisors: Dr. Kishore Prahallad, Dr. Manish Shrivastava
Research Lab: Language Technologies Research Center, IIIT-H
CGPA: 8.17/10

Bachelor of Technology, Information Technology
SASTRA University, Thanjavur, TN,
June 2007 - Aug 2011
CGPA: 8.60/10

Schooling: City Montessori School, Lucknow, UP.

COMPUTER SKILLS

Languages & Software: C/C++, Python, MATLAB, Java, JavaScript, Bash
Toolkits: KALDI, CMU Sphinx, Tensorflow, Torch7, Keras, Theanets.

EXPERIENCE

NLP Intern Sept 2016 - Present
Teletext Holidays, India

- Develop analytic tools to mine intelligence from recorded telephone conversational speech and erroneous speech recognition text
- Disfluency detection and correction of spontaneous speech recognition output
- Automatic dialog modeling and ontology creation from given data
- Sentiment analysis over conversational spoken text, user reviews and forums

Research assistant 2014 - 2016

Virtual Assistant for Indian healthcare scenarios (ITRA)

Mentors: Dr. Manish Shrivastava, Dr. Radhika Mamidi, Dr. Anoop Namboodiri

- Developed working prototypes for diagnosis of 1000 diseases by using human disease ontology.
- Developed acoustic and language models using CMU Sphinx toolkit
- Worked on developing robust features for keyword spotting
- Currently working towards integration of multiple Indian languages in SDS

Software developer intern Summer 2014

Intel Challenge 2014 - MIT Media Labs

- Developed machine learning algorithm and user interface for detecting Obstructive Sleep Apnea and Hypoapneic events in EEG signals collected through a wearable device.

<i>Development Engineer</i>	Aug 2013 - Feb 2014
Wavemaker - Pramati Technologies, Hyderabad	
<ul style="list-style-type: none"> Developed live variables module in wavemaker for easy integration of database and web-services to any web application using AngularJS. 	
<i>Consultant</i>	July 2011 - Aug 2013
Ascendant Software Technology (now Sirius Technology Solutions), Chennai	
<ul style="list-style-type: none"> Developed applications using IBM Server technologies like, WebSphere Portal, Commerce and BigInsights. 	
<i>Linux Developer</i>	Nov 2010 - Apr 2011
Common Probe Infrastructure - IBM Remote Mentorship	
<ul style="list-style-type: none"> Worked towards merging Linux kernel and user probes to provide better kernel analysis and debugging. 	

PUBLICATIONS

1. Brij Mohan Lal Srivastava and Manish Shrivastava. Articulatory gesture rich representation learning of phonological units in low resource settings. *4th Statistical Speech and Language Processing, Pilsen, Czech Republic*, 2016
2. Brij Mohan Lal Srivastava, Hari Krishna Vydana, Anil Kumar Vuppala, and Manish Shrivastava. Significance of neural phonotactic models for large-scale spoken language identification. *Submitted to IJCNN*, 2017
3. Brij Mohan Lal Srivastava, Prathyusha Danda, and Manish Shrivastava. Vaidya: A spoken dialog system for health domain. *Accepted at ICON*, 2016
4. Hari Krishna, Brij Mohan Lal Srivastava, Manish Shrivastava, and Anil Kumar Vuppala. Starting small learning strategies for speech recognition. *Accepted at INDICON, Bengaluru, India*, 2016
5. Ayushi Pandey, Brij Mohan Lal Srivastava, Saikrishna Rallabandi, and Suryakanth V Gangashetty. Predicting inflectional patterns in code mixed automatic speech recognition. *Himalayan Language Symposium, IIT-Guwahati*, 2016
6. Sai Krishna, Brij Mohan Lal Srivastava, and Ayushi Pandey. A framework for humor recognition from social media using word embeddings. *International Conference for Linguistic Society of India-37, JNU, New Delhi*, 2015

ACADEMIC PROJECTS

<i>Statistical Machine Translation from English to German</i>	Feb 2014
As part of Natural Language Application course	
<ul style="list-style-type: none"> Learnt probabilistic phrase alignment model from English to German. Learnt language model from German text. Combined the translation and language model to predict the translation. 	
<i>Comparison of TF-IDF and PageRank algorithm for information retrieval</i>	Mar 2014
As part of Information Retrieval & Extraction course	
<ul style="list-style-type: none"> Indexed English Wikipedia corpus using algorithms TF-IDF & PageRank algorithms Implemented a JAX-WS based web-service and user interface to fetch results simultaneously from both algorithms. 	
<i>Search Engine for Wikipedia</i>	Feb 2014
As part of Information Retrieval & Extraction course	
<ul style="list-style-type: none"> Built inverted index for preprocessed Wikipedia corpus. Search engine based on tf-idf model was developed. 	

3 Link Manipulator(Robot) path planning using Rapidly Exploring Random Tree
Apr 2014

As part of Intro to Robotics course

- Developed kinematic model of the robot.
- Exploring configuration space with obstacles using Rapidly Exploring Random Trees(RRT).
- Find the path from initial to final position avoiding obstacles.

Speech synthesis using magnitude and phase spectrum

Aug 2014

As part of Speech Technology course

- Computed MFCC features from speech signal
- Extracted phase and magnitude spectrum using Fast Fourier Transform (FFT).
- Synthesized speech signal from spectral information.

Speaker recognition using Gaussian Mixture Models

Sep 2014

As part of Speech Technology course

- Trained speaker-specific GMMs with varying number of mixture components.
- Computed distance measure to associate test utterances to GMMs.

Isolated word recognition using Dynamic Time Warping

Oct 2014

As part of Speech Technology course

- Created posteriorgram model for individual words.
- Aligned test queries against models using DTW.
- Calculated cost to recognize keywords.

Indian sign language recognition using Convolutional Neural Networks (CNN)
2014

Dec

As part of Statistical Methods in AI course

- Classification of English characters represented as hand signs in images using CNN
- Experiments with various configurations like data augmentation, dropout and non-linear functions.

EXTRA-CURRICULAR SERVICE

Served *Webmaster*, Daksh, SASTRA, 2011
Served *IBM Campus Ambassador*, SASTRA, 2010-11
Elected as *Joint Secretary*, IT Association, SASTRA, 2009-10
Elected as *Executive Member*, IT Association, SASTRA, 2008-09
Headed Center of Excellence at Avnet Services and mentored new joiners, 2013

AWARDS

SASTRA Dean's list award to appear in top 10% of the batch - 2008
Ace of the Ace award for outstanding performance at Ascendant - 2011
Best Performer Award at Ascendant - 2012
Full research fellowship at IIIT-H - 2014

NATIVE

Languages: *Hindi - Mother tongue, English - Fluent*
Hometown : *Lucknow, Uttar Pradesh, India*