Brij Mohan Lal **Srivastava**

Researcher · Speech, Language & Privacy

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Education

INRIA (Université de Lille), France — *Lille & Nancy, France*

PhD in Computer Science — *Oct 2018 - Ongoing*

- Thesis: Privacy-preserving speech processing
- Advisors: Dr. Marc Tommasi, Dr. Aurélien Bellet, Dr. Emmanuel Vincent

International Institute of Information Technology, Hyderabad — *Hyderabad, India*

M.S. in Computer Science and Engineering — *Dec 2013 - May 2017*

- Thesis: Multilingual Spoken Dialog Systems for Handheld Devices
- Advisors: Dr. Manish Shrivastava, LTRC
- CGPA: 8.17/10

SASTRA University — *Thanjavur, India*

B.Tech. in Information Technology — *July 2007 - Aug 2011*

- CGPA: 8.6/10

Experience

Microsoft Research India — *Bengaluru, India*

Research Engineer — *Feb 2018 - Present*

- Working on End-to-End models for automatic code-mixed speech recognition

Microsoft Research India — *Bengaluru, India*

Research Intern — *July 2017 - Feb 2018*

- Worked in Project Mélange with Dr. Kalika Bali, Dr. Sunayana Sitaram and Dr. Monojit Choudhury.
- Developed automatic speech recognition systems for code-mixed speech.

CMUSphinx — *India*

Summer Intern (Google Summer of Code) — *May 2017 - Aug 2017*

- Worked with James Salsman to implement the authentic pronunciation evaluation metric
- Project: Pronunciation Intelligibility Remediation with Pocketsphinx.js
- Blog: http://pronunce.blogspot.in

Teletext Holidays — *Hyderabad, India*

Software Engineer (Speech & NLP) — *Sept 2016 - Mar 2017*

- Develop analytic tools to mine opinion phrases, topics and agent compliance rules from recorded telephone conversational speech and erroneous speech recognition text
- Sentiment analysis over conversational spoken text, user reviews and social media data
- Agent speech training through mispronunciation detection

Virtual Assistant for Indian healthcare (ITRA, IIIT-H) — *Hyderabad, India*

Research assistant — *May 2014 - Aug 2016*

- 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 and scaling to multiple Indian languages

Intel Challenge 2014 - MIT Media Labs — *India*

Software developer intern — *Summer 2014*

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

Wavemaker - Pramati Technologies *Hyderabad, India*

Development Engineer *Aug 2013 - Feb 2014*

- Developed live variables module in wavemaker for easy integration of database and web-services to any web application using AngularJS.

Avnet Inc. *Chennai, India*

Consultant *July 2011 - Aug 2013*

- Developed applications using IBM Server technologies like, WebSphere Portal, Commerce and BigInsights.

Common Probe Infrastructure - IBM Remote Mentorship Program *India*

Linux Hacker *Nov 2010 - Apr 2011*

- Worked towards merging Linux kernel and user probes to provide better kernel analysis and debugging.

Publications

Homophone identification and merging for code-switched speech recognition *Accepted at Interspeech*

Brij Mohan Lal Srivastava and Sunayana Sitaram *2018*

Phone Merging for Code-switched Speech Recognition *Accepted at ACL Code-Switching Workshop*

Sunit Sivasankaran, Brij Mohan Lal Srivastava, Sunayana Sitaram, Kalika Bali and Monojit Choudhury *2018*

Spoken English Intelligibility Remediation with PocketSphinx Alignment and Feature Extraction Improves Substantially over the State of the Art [PDF] *IEEE IMCEC*

Yuan Gao, Brij Mohan Lal Srivastava and James Salsman *2018*

Phonetically Balanced Code-Mixed Speech Corpus for Hindi-English Automatic Speech Recognition *Accepted at LREC*

Ayushi Pandey, Brij Mohan Lal Srivastava and Suryakanth V Gangashetty *2018*

Adapting monolingual resources for code-mixed Hindi-English speech recognition *Accepted at IALP*

Ayushi Pandey, Brij Mohan Lal Srivastava and Suryakanth V Gangashetty *2017*

Significance of neural phonotactic models for large-scale spoken language identification [PDF] *IJCNN, Anchorage, Alaska*

Brij Mohan Lal Srivastava, Hari Krishna Vydana, Anil Kumar Vuppala and Manish Shrivastava *2017*

Articulatory gesture rich representation learning of phonological units in low resource settings [PDF] *4th SLSP, Pilsen, Czech Republic*

Brij Mohan Lal Srivastava and Manish Shrivastava *2016*

Vaidya: A Spoken Dialog System for Health Domain [PDF] *ICON, IIT-BHU, Varanasi, India*

Brij Mohan Lal Srivastava, Prathyusha Danda and Manish Shrivastava *2016*

Starting Small Learning Strategies for Speech Recognition [PDF] *INDICON, Bengaluru, India*

Hari Krishna, Brij Mohan Lal Srivastava, Manish Shrivastava and Anil Kumar Vuppala *2016*

Predicting inflectional patterns in Code Mixed Automatic Speech Recognition *Himalayan Language Symposium, IIT-Guwahati*

Ayushi Pandey, Brij Mohan Lal Srivastava, Saikrishna Rallabandi and Suryakanth V Gangashetty *2016*

A Framework for Humor Recognition from Social Media using Word Embeddings *ICOLSI-37, JNU, New Delhi*

Sai Krishna, **Brij Mohan Lal Srivastava** and Ayushi Pandey *2015*

Academic Projects

Statistical Machine Translation from English to German *IIIT-Hyderabad*

As part of Natural Language Application course *Feb 2014*

- 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.

Comparison of TF-IDF and PageRank algorithm for information retrieval *IIIT-Hyderabad*

As part of Information Retrieval & Extraction course *Mar 2014*

- 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.

Search Engine for Wikipedia *IIIT-Hyderabad*

As part of Information Retrieval & Extraction course *Feb 2014*

- 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 *IIIT-Hyderabad*

As part of Intro to Robotics course *Apr 2014*

- 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 *IIIT-Hyderabad*

As part of Speech Technology course *Aug 2014*

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

Speaker recognition using Gaussian Mixture Models *IIIT-Hyderabad*

As part of Speech Technology course *Sep 2014*

- 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 *IIIT-Hyderabad*

As part of Speech Technology course *Oct 2014*

- 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) *IIIT-Hyderabad*

As part of Statistical Methods in AI course *Dec 2014*

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

Extracurricular Activity

2013	**Lead**, Center of Excellence	*Avnet Inc.*
2011	**Webmaster**, DAKSH Techfest	*SASTRA University*
2010 - 11	**IBM Campus Ambassador**, SASTRA	*SASTRA University*
2009 - 10	**Joint Secretary**, IT Association	*SASTRA University*
2008 - 09	**Executive Member**, IT Association	*SASTRA University*

Honors & Awards

2014-16	**Full research fellowship**, ITRA	*IIIT-Hyderabad*
2012	**Best Performer Award**, Avnet Inc.	*Chennai, India*
2011	**Ace of the Ace award for outstanding performance**, Avnet Inc.	*Chennai, India*
2008	**Dean's list award to appear in top 10% of the batch**, SASTRA University	*Thanjavur, India*

Program Committees

2018	**Organizer**, Low Resource Speech Recognition Challenge for Indian Languages	*Interspeech 2018 Special Session*
2017	**Reviewer**, Applied Soft Computing	*Elsevier*
2018	**Member**, Speech Prosody	*Poland*

Skills

Programming languages

C/C++, Python, MATLAB, Java, JavaScript, Bash

Machine Learning & Speech Processing Toolkits

KALDI, CMU Sphinx, Tensorflow, Torch, Keras, CNTK, PyTorch.

Native

Languages

Hindi - Mother tongue, *English* - Fluent

Hometown

Lucknow, Uttar Pradesh, India