Shruti Rajendra Kshirsagar

2285 Saint-Mathieu Street, Apt 907, Montreal, Quebec H3H 2J7, Canada

https://shrutikshirsagar.github.io/ | (+1) 438-725-4117 | shruti.kshirsagar@emt.inrs.ca

RESEARCH INTEREST

Deep Learning, Machine Learning, Speech Processing, Signal Processing, Emotion Recognition, Artificial Intelligence

EDUCATION

Instutut national de la recherche scientifique, Montreal, Canada   *January 2018 – Present*
PhD in Telecommunications | GPA: 4.0/4.3
Advisor: Dr. Tiago H. Falk (Director, MuSAE Lab)

Mumbai University, India   *August 2014 – July 2016*
Masters in Electronics and Telecommunication Engineering
Specialization: Signal Processing | CGPA: 9.08/10
Advisor: Dr. Preeti Rao (Professor, IIT Bombay)

Mumbai University, India   *August 2010 – May 2014*
Bachelors in Electronics and Telecommunication Engineering
Percentage: 72.64% (First Class with Distinction)

PUBLICATIONS & POSTER PRESENTATIONS

- Avila, S. Kshirsagar, A. Tiwari, D. Lafond, D. O'Shaughnessy, and T. Falk, " Speech-based stress and emotion classification based on modulation spectral features and convolution neural networks ", EUSIPCO 2019, Spain.
- Gaballah, Amr, Anderson Avila, Joao Monteiro, Parth Tiwari, Shruti Kshirsagar, and Tiago H. Falk. "Development of the INRS-EMT Scene Classification Systems for the 2020" DCASE challenge 2020.
- Tiwari, P., Jain, Y., Avila, A., Monteiro, J., Kshirsagar, S., Gaballah, A., & Falk, T. H. Modulation Spectral Signal Representation and I-vectors for Anomalous Sound Detection, DCASE challenge 2020.
- S. Barhate, S. Kshirsagar, N. Sanghvi, K. Sabu, P. Rao and N. Bondale " Prosodic Features of Marathi News Reading Style ", Proc. of IEEE TENCON, Nov 2016, Singapore.
- P. Rao, H. Mixdorff, I. Deshpande, N. Sanghvi and S. Kshirsagar " A Quantitative Study of Focus Shift in Marathi ", Proc. of Speech Prosody, May 2016, Boston, U.S.A.
- Poster presentation on " Prosodic Features of Marathi News Reading style" at TENCON- International Technical Conference of IEEE Region 10 (2016), Singapore.
- Poster presentation on "Multimodal emotion recogntion "in the wild" at STARaCOM- Industrial meetup (2019), Montreal, Canada.
- Poster presentation on "Exploring Domain Adaptation for Monolingual and Cross-lingual Speech Emotion Recognition"- at ACM Canadian Celebration of women in computing conference (2019), Toronto, Canada.

EXPERIENCE

MITACS Accelerate Research Intern | Lisnen Canada, Toronto, Ontario   **August 2020-December 2020**
- Developing a mobile based hearing assistive application to provide situation awareness.
- Data preparation and feature analysis for sound recognition.
- Developing a deep learning end to end model using TensorFlow Lite to recognize sounds, and integrate this developed model in IOS and android device using a React Native framework.

MITACS Accelerate Research Intern | Thales Canada, Quebec   **May 2018 – September 2018**
Supervisor: Dr. Daniel Lafond
- Multi-modal speech emotional (stress) recognition using LSTM.
- Stress detection from speech signal.
- Investigated the effects of different noise types and noise levels on the speech data.
- Employed domain adaptation for cross-language emotion detection

Research Assistant | Nanyang Technological University, Singapore   **May 2017 – August 2017**
Supervisor: Prof. Chng Eng Siong (Head, Speech and Language Group)
- Worked on "Analysis of prosodic pattern for the speech emotion recognition".

- Analyzed pitch patterns for the different emotions.
- Conducted experiments to investigate novel features for speech emotion recognition using DNN.

Masters Dissertation Thesis | Indian Institute of Technology Bombay, India   **August 2015 – June 2016**
Supervisor: Prof. Preeti Rao (Head, Digital Audio and Processing Lab)
- Studied the pitch, intensity and duration of utterances using techniques such as one way ANOVA.
- Identified the acoustic correlates of stress in Marathi language using MATLAB and PRAAT.
- Modelled these acoustic features in different lexical stress locations and focus types.

Summer Intern | Doordarshan Kendra (National Television Channel, India)   **July 2013**
- Field study of signal processing equipment used in broadcasting.
- Understood and visualized the signals at each stage of transmission

PRIVATE TUTOR   **May 2015 – December 2016**

Taught following courses to undergraduate engineering students:
Signal and Systems, Random Signal analysis, Linear Algebra, Probability and Random Variables

TECHNICAL PROFICIENCY

Python, TensorFlow, PyTorch, Praat, MATLAB, Linux

RELEVANT COURSES

Applied Machine Learning, Learning Representations(Deep Learning), Verbal Communications

EXTRA-CURRICULAR:

Academic
- Exchange student at McGill University.   *Fall 2018*
- Exchange student at University de Montreal   *Spring 2018*
- Took advanced courses in speech processing at IIIT Hyderabad, India   *January 2017-December 2017*
- Formulated solutions for engineering exams held between years 2011 – 2014 by Mumbai University   *February 2015*

Honors & Awards
- MITACS Accelerate Internship Grant   *Summer 2018*
- MuSAE Lab Grant   *January 2018 – December 2021*
- INRS International Student Scholarship   *January 2018 – December 2021*
- NTU Singapore 'Tamasek Lab Research Grant' for International Internship   *Summer 2017*
- IIIT Hyderabad Language Technologies Research Center Lab Grant   *January 2017 – December 2017*
- IIT Bombay Digital Audio and Processing Lab Grant   *April 2016 – June 2016*
- Graduate Aptitude Test in Engineering (GATE) Scholarship for Masters   *August 2014 – July 2016*

Organization
- Association for the Advancement of Affective Computing
- IEEE Signal Processing Society
- IEEE Women in Engineering
- IEEE Young Professionals
- Women in Machine Learning