PRACHI SINGH

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OBJECTIVE

As a PhD scholar, I am looking for research internship where I would be able to align my skills and interest in building a useful product and develop a strong connection with my team and organization as a whole.

RESEARCH INTERESTS

Speaker Diarization, Machine Learning, Variational Inference, Metric Learning, Self-supervised learning.

SKILLS

Languages	Python, C, C++, Shell
Libraries	Kaldi, Pytorch, OpenCV
Software & Tools	Spyder, Jupyter Notebook, MATLAB, MS Office,Visual Studio

EDUCATION & COURSES

Ph.D.	*2017 - Present*
Electrical Engineering	(CGPA : 8.00/10)
Indian Institute of Science, Bangalore	
B.Tech	*2011 - 2015*
Electronics & Telecommunication	(CGPA : 8.67/10)
College of Engineering, Pune	

Courses

- Machine Learning for Signal Processing
- Pattern Recognition and Neural Networks
- Data Structures
- Computational Methods of Optimization
- Speech Information Processing
- Stochastic Models and Applications
- Matrix Theory
- Detection and Estimation Theory

EXPERIENCE

Software Modelling Engineer
Fiat Chrysler Automobiles

📅 July 2015 - July 2017

- Electronic Control Unit(ECU) modelling and Network Management using CAN communication, Hardware In Loop Testing and Validation of Infotainment system.
- Validation of issues in modules (ECU) present in automobile.

ACHIEVEMENTS

- Interview published in theinterviewportal.com for career guidance.
- ISCA Travel Grant for Interspeech, 2019
- Runner-up in "Second DIHARD Challenge 2019" , April 2019
- Late Shri Manoharbhai Patel Memorial Gold Medal in XII Std
- Dhirubhai Foundation Scholarship in XII Std

THESIS WORK

Research advisor: Dr. Sriram Ganapathy

Self-supervised Speaker Diarization

- This work involves learning representations using clustering based loss. The task is self-supervised because we learn the representations using the clustering output given by the Agglomerative Heirarchical Clustering algorithm to make the representations more speaker discriminative [Submitted in Interspeech 2020].

Speaker Diarization using Posterior Scaled VB-HMM

- The project involves identifying different speakers present in different segment of a given audio recording from DIHARD dataset which has challenging scenarios including restaurants, clinical interviews, mother child conversations etc. using posterior scaled Variational Bayes - Hidden Markov Model. The work is published in Interspeech,Graz,Austria 2019.

Diarization for multi-speaker test conditions in SRE 2018 challenge

- SRE 2018 challenge involved test conditions with multiple speaker. We perform diarization to extract individual speaker segments to score against the enrollment. This work is published in ICASSP 2019.

PUBLICATIONS

- **P. Singh**, Harsha Vardhan MA, S. Ganapathy, A. Kanagasundaram, "LEAP Diarization System for the Second DIHARD Challenge", INTERSPEECH 2019.
- S. Ramoji, P. Krishnan, B. Mysore, **P. Singh**, S. Ganapathy, "LEAP System for SRE19 Challenge – Improvements and Error Analysis", Speaker Odyssey Workshop 2020.
- A. Kanagasundaram, S. Sridharan, S. Ganapathy, **P. Singh**, C. Fookes, "A Study of X-vector Based Speaker Recognition on Short Utterances", INTERSPEECH 2019.
- S. Ramoji, A. Mohan, B. Mysore, A. Bhatia, **P. Singh**, Harsha Vardhan, S. Ganapathy, "The LEAP Speaker Recognition System for NIST SRE 2018 Challenge", ICASSP 2019.

WORKSHOPS AND CONFERENCES

- Winter School on Speech and Audio Processing (WiSSAP) 2020,IIT Mandi, India
- Presented paper and poster in Interspeech 2019, Graz, Austria
- Summer school on mathematics for data science 2019 organised by IFCAM and IISc
- Winter School on Speech and Audio Processing (WiSSAP) 2019, Trivandrum, India
- Interspeech 2018, Hyderabad, India
- Brain Computation and Learning Workshop, 2018, Bangalore, India
- International Conference on Signal Processing and Communications(SPCOM), 2018

TEACHING EXPERIENCE

- Teaching Assistant
  Deep learning theory and Practice [CCE]
  📅 Spring 2020

- Teaching Assistant
  Machine Learning and Signal Processing [E9:205]
  📅 Fall 2019