



Sarvajanic Education Society
Sarvajanic College of Engineering & Technology
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R&D Lecture Series (Computer Engineering Department)

AY: 2018-19

Title of the Talk: - Spoofing Attacks in Automatic Speaker Verification (ASV) Analysis and Countermeasures.

Speaker Details:

Dr. Hemant A. Patil received Ph.D. degree from the Indian Institute of Technology (IIT), Kharagpur, India. Presently he is working as a Professor at DA-IICT Gandhinagar and had developed Speech Research Lab at DA-IICT recognized as ISCA speech labs. Dr. Patil has published around 220 research publications in national and international conferences/journals/book chapters. He has received DST Fast Track Award for Young Scientists for infant cry analysis. Dr. Patil has taken a lead role in organizing several ISCA supported events, such as summer/winter schools/CEP workshops (such as speaker and language recognition, speech source modelling, text-to-speech synthesis, speech production-perception link, advances in speech processing) and progress review meetings for two MeitY consortia project all at DA-IICT Gandhinagar. Dr. Patil has supervised 03 doctoral (including doctoral thesis supervision in spoofing attacks) and 42 M.Tech. theses. Presently, he is supervising 04 doctoral students. Recently, he offered a joint tutorial with Prof. Haizhou Li during Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC) 2017. He has been selected as APSIPA Distinguished Lecturer (DL) for 2018-2019. He has delivered 08 APSIPA DLs in three countries, India, China and Canada.

Description of Talk arranged on 20/09/2018:

Speech is most natural way of communication between humans and it carries various levels of information, such as linguistic content, emotion, acoustic environment, language, speaker's identity and health conditions, etc. Speaker recognition verifies or identifies a speaker via his/her voice. Automatic Speaker Verification (ASV) involves verifying the claimed speaker's identity. In practice, we would like a speaker verification system to be robust against variations, such as microphone and transmission channel, intersession, acoustic noise, speaker ageing, etc. This robustness makes ASV

system to be vulnerable to various spoofing attacks as it tries to nullify these effects and make spoofed speech more close to the natural speech. Hence, we would like the system to be secure against spoofing attacks.

In this talk, different issues concerning the robustness and security of a speaker verification system were discussed. He also discussed the latest progress and the research activities in anti-spoofing countermeasures against voice conversion (VC), speech synthesis (SS), replay, twins and professional mimics. In particular, brief details of risk and technological challenges associated with each of these attacks were discussed. The talk also gave brief overview of two international challenge campaigns, namely ASV Spoof 2015 and ASV Spoof 2017 organized during INTERSPEECH 2015 and INTERSPEECH 2017, respectively. Finally, the talk concluded with overall summary of current state-of-the-art in this field and discussion in future research directions.

Research Collaborations:

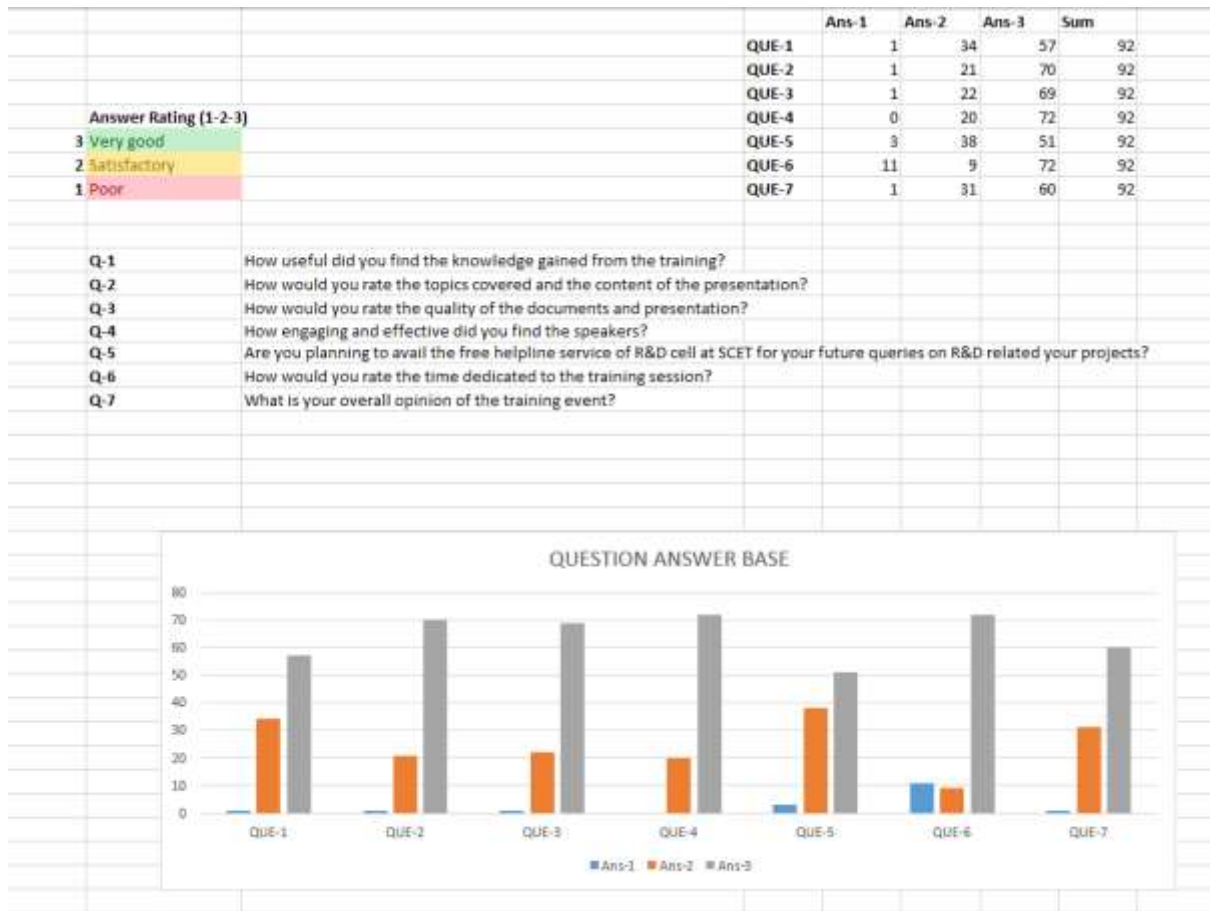
It was discussed with Dr. Hemant Patil about exploration of opportunities whereby collaborative work could be carried out between SCET and DAIICT. Dr. Patil shared the scheme of DAIICT internship wherein students can go and work in high end labs of DAIICT under the external guidance of any DAIICT faculty at a nominal fee. Dr Patil agreed to extend the external guidance and opportunity to conduct research experiment in International Speech Communication Association (ISCA) recognized speech labs at DAIICT for any 2 students recommended by SCET.

He was open to extend his support for Faculty working in his domain to the best of his capability. He was also open to the idea of formulating a joint research proposal between SCET and DAIICT.

Dr Patil is a Distinguished Lecturer (DL) of Asia Pacific Signal and Information Processing Association (APSIPA) and has delivered 08 APSIPA DLs in three countries viz India, China and Canada and we were fortunate to witness one of his DLs at SCET. Thus SCET will be projected internationally at the newline of APSIPA website.

Feedback analysis:

This section shows the feedback analysis of the session. We collected feedbacks from a total of 92 participants.



Audience:

The audience comprises of 60 students from BE, 25 students from ME(Computer) and 10 Faculty members that actively participated in the guest talk.

Some Glimpses of the Event:



Welcome speech by Dr. Dipali Kasat, Faculty - Computer Engg. Department



Faculty and students attending the talk



Floral felicitation of the guest by Dr. Keyur Rana, Head Of the Computer Engg Department



Dr. Hemant A. Patil discussing Speech Research For ASV



Vote of thanks by Prof. Rakesh Patel, Faculty - Computer Engg. Department



Group Photo Of the memorable talk



Interaction with the faculty members

Acknowledgment:

Through this brief note we would like to acknowledge the help who directly and indirectly contributed towards the completion of report. We sincerely appreciate the inspiration and support and guidelines of all those who have been instrumental in making this event successful. We also thank the Head of the department Dr. Keyur Rana for all kind of support extended and Honourable Principal madam Dr. Vaishali Mungurwadi for granting permission for the said event and encouraging us. We would also like to extend our sincere gratitude to Associate Dean R&D, Dr. Chirag Paunwala for his guidance and support in organizing the expert talk.

Compiled By:

Dr. Dipali Kasat, Computer Engineering Department
Prof. Rakesh Patel, Computer Engineering Department

Drafted by: Harsh Jariwala CO (Shift-2), 3rd year