INDRAPRASTHA INSTITUTE of INFORMATION TECHNOLOGY DELHI

Invitation to MTech Thesis Defense of Divya Sharma July 30, 2018 (Monday): 11.30-12.30 IST

In Partial Fulfillment of the Requirements for the Degree of
M.Tech CSE

Divya Sharma (MT16059)

Will defend her thesis

Title: "Context-Aware RNN Based Voice Authentication System"

IIIT-D Faculty and Students are invited

Date: July 30th 2018 (Monday)
Time: 11.30-12.30 PM
Place: Meeting Room (A520), 5th Floor(NAB)

Examiner:	**Internal :**	**Ponnurangam Kumaraguru**
	External/Internal:	**Sambuddho Chakravarty**
	Advisor:	**Arun Balaji Buduru**

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Abstract
Our personal handheld devices, such as smartphones etc. may contain confidential information. An effective biometric authentication system would prevent unauthorized access to confidential data. It would prevent privacy breaches. Many smartphone companies have already started incorporating biometric authentication features, such as fingerprint recognition, face recognition etc. to unlock the smartphone. The limitations of the traditional knowledge-based and possessionbased access control methods invoke the need for efficient biometric authentication schemes. A voice authentication system is a user-friendly and secure biometric authentication system. It has a wide range of applications in E-commerce, law, forensics, business interactions etc. The cost of an efficient voice-based authentication system might just be a software, some amount of memory space and some amount of computational time to authenticate its users. Seeing the high accuracy rates, cost-effectiveness, ease of use and the capability to authenticate users remotely, organizations (specially which do business over communication networks) would certainly want to use a voice authentication system in order to prevent identity theft. In this thesis, we have implemented a text-independent context aware voice authentication system for a set of 30 known speakers. We have implemented this system for a closed (or in-set) scenario. The proposed voice authentication system, accepts a test voice sample (a wav file having sample rate = 16000 samples/ second) of one of the known speakers. It extracts Mel Frequency Cepstral Coefficients (MFCC) features from the test voice sample, sends these features as input to each speaker specific RNN based model and predicts the speaker name of the test sample. In this thesis, we experimented with 8 different architectures of RNN based voice authentication system and compared the performance of these architectures. In the end, we also ensembled their results on the basis of majority voting and sum of output probabilities.