

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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Area: Signal Analysis & Machine Intelligence

Host: Prof Li Haizhou

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IEEE Singapore Systems, Man and Cybernetics Chapter

TOPIC	:	On Security of Automatic Speaker Verification for Arbitrarily Large Speaker Populations
SPEAKER	:	Assoc Prof Tomi H. Kinnunen, University of Eastern Finland
DATE	:	11 December 2019, Wednesday
TIME	:	2pm to 3pm
VENUE	:	E5-02-32, Engineering Block E5, Faculty of Engineering, NUS

ABSTRACT

How secure automatic speaker verification (ASV) technology is? How many different voices can be discriminated from each other? These questions may be addressed empirically by studying naturally confusable pairs of speakers within a large enough speech corpus. There are, however, two shortcomings: first, one cannot say much about the security beyond the speaker population size. Second, speaker confusion is typically defined in terms of random impostors, rather than worst-case impostors, which is more relevant in user authentication applications. In this talk I introduce a novel ASV performance evaluation framework that enables extrapolation of worst-case false acceptance rate beyond the speaker population size of the evaluation corpus. This is achieved via Bayesian generative modeling of the ASV detection scores. The framework allows one to make a prediction of the safety of given ASV technology, in its current state, for arbitrarily large speaker database size consisting of virtual (sampled) speakers. I present preliminary findings on the VoxCeleb 1 & 2 corpora with i-vector and x-vector speaker embeddings.

BIOGRAPHY



Tomi H. Kinnunen is an Associate Professor at the University of Eastern Finland. He received the Ph.D. degree in computer science from the University of Joensuu in 2005. From 2005 to 2007, he was an Associate Scientist at the Institute for Infocomm Research (I2R) in Singapore. Since 2007, he has been with UEF. From 2010-2012, he was funded by a postdoctoral grant from the Academy of Finland focusing on speaker recognition. He has been a PI or co-PI in three other large Academy of Finland funded projects on speaker recognition and voice antispoofing and a partner in the H2020-funded OCTAVE project focusing on voice biometrics for physical and logical access control. He chaired the Odyssey workshop in 2014. From 2015 to 2018, he served as an Associate Editor for IEEE/ACM Trans. on Audio, Speech and Language Processing and from 2016 to 2018

as a Subject Editor in Speech Communication. Between 2015 and 2016, he visited the National Institute of Informatics (NII), Japan, for 6 months under a mobility grant from the Academy of Finland, with a focus on voice conversion and spoofing. Since 2017, he has been Associate Professor at UEF, where he leads the Computational Speech Group. He is known as one of the cofounders of the ASVspoof Challenge, a nonprofit initiative that seeks to evaluate and improve the security of voice biometric solutions under spoofing attacks. Please see: ([HTTP://CS.JOENSUU.FI/PAGES/TKINNU/WEBPAGE/](http://cs.joensuu.fi/pages/tkinnu/webpage/))