SEMINAR ANNOUNCEMENT

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Area: Signal Analysis & Machine Intelligence

Host: Prof Li Haizhou

Co-Organized by
IEEE Singapore Systems, Man and Cybernetics Chapter

TOPIC	**:**	**The Imitation Game: Teaching robustness to speech and language systems**
SPEAKER	**:**	**Prof Eric Fosler-Lussier,** **The Ohio State University,** **Department of Computer Science and Engineering,** **with courtesy appointments in Linguistics and Biomedical Informatics**
DATE	**:**	**13 December 2019, Friday**
TIME	**:**	**10am to 11.30am**
VENUE	**:**	**E5-02-32, Engineering Block E5, Faculty of Engineering, NUS**

ABSTRACT

Robustness to noise and errors is one of the greatest challenges for spoken language systems today. In this talk, I look at how imitation can be useful in training systems to be more robust in two different scenarios. In the first part of the talk, I will discuss our work using imitation in speech enhancement and robust speech recognition. Spectral mappers transform noisy speech into clean speech; when spectral mappers are trained with an objective that mimics the behavior of speech recognition systems trained on clean speech, we can improve both ASR performance and speech enhancement metrics.

In the second part of the talk, I discuss our work in turning a Virtual Patient chatbot for training medical doctors into a spoken dialogue system. The core problem we address is how to make the system robust to ASR errors when no training speech data exists. By imitating the error patterns of a speech recognizer trained on completely different data, we are able to simulate speech recognition output corresponding to the chatbot text input. By sampling simulated errors, we are able to train the spoken dialogue system more robust to errors made by a cloud-based ASR system without having access to any in-domain speech data.

BIOGRAPHY

Eric Fosler-Lussier is a Professor of Computer Science and Engineering, with courtesy appointments in Linguistics and Biomedical Informatics, at The Ohio State University. After receiving a B.A.S. (Computer and Cognitive Science) and B.A. (Linguistics) from the University of Pennsylvania in 1993, he received his Ph.D. in 1999 from the University of California, Berkeley, performing his dissertation research at the International Computer Science Institute under the tutelage of Prof. Nelson Morgan. He has also been a Member of Technical Staff at Bell Labs, Lucent Technologies, and a Visiting Researcher at Columbia University. In 2006, Prof. Fosler-Lussier was awarded an NSF CAREER award, and in 2010 was presented with a Lumley Research Award by the Ohio State College of Engineering. He is also the recipient (with co-author Jeremy Morris) of the 2010 IEEE Signal Processing Society Best Paper Award. In 2011, the Department of Computer Science & Engineering presented him with the Departmental Teaching Award. Fosler-Lussier (with his students and colleague Albert Lai) has twice been recognized with a Best Paper award in the Natural Language Processing section of the International Medical Informatics Association (IMIA) Yearbook (2015, 2017).

BIOGRAPHY

He has published widely in speech and language processing, is a member of the Association for Computational Linguistics, the International Speech Communication Association, and a senior member of the IEEE.

Fosler-Lussier serves as an action editor for the Transactions of the Association for Computational Linguistics, as an associate editor for the IEEE/ACM Transactions on Audio, Speech, and Language Processing, and is serving his third term on the IEEE Speech and Language Technical Committee. He served on the editorial board of the ACM Transactions on Speech and Language Processing and was co-Program Chair for NAACL 2012. He is generally interested in integrating linguistic insights as priors in statistical learning systems.