



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA



ISTITUTO
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DBGROUP

Deep Learning-based Automatic Speech Recognition @ IIT – A Multimodal Approach

Seminar organized as part of the
ICT Doctorate School

Thursday March 14th 2019

16.00 – 18.00

Room P1.4

Via Pietro Vivarelli 10 – Modena

Presenter: Dr. Leonardo Badino

Seminar abstract

The steady increase of training data and computational resources combined with the use of deep neural networks has been continuously increasing the accuracy of automatic speech recognition (ASR) in the last few years, with ASR matching human performance in some tasks.

In the first part of my talk, I will review previous work on deep learning-based acoustic modeling for ASR, ranging from hybrid deep neural network – hidden Markov model (DNN-HMM) to sequence-to-sequence approaches.

In the second part, I will introduce our work at the Italian Institute of Technology (IIT). Most of this work is inspired by influential neurophysiological theories of speech perception and considers speech as a multimodal process. This multimodal view is at the core of our *Articulatory ASR*, an approach to ASR that uses speech production knowledge (i.e., knowledge of how the vocal tract moves to produce speech sounds), and in our audio-visual systems for speech enhancement and recognition.

Finally, I will show applications for human-robot interaction and mobile app for dysarthric speech.

Presenter's Bio

Leonardo Badino is a research scientist at the Italian Institute of Technology where is currently coordinating the automatic speech recognition team. He received a PhD in Computer Science from the University of Edinburgh (2006-2010). Before moving to Edinburgh he worked as software engineer / project manager at Loquendo, a speech technology company (2001-2006). His main research interests include automatic speech recognition (ASR) with a focus on neuro-inspired ASR, machine learning for speech processing, text-to-speech synthesis, and analysis of non-verbal communication.