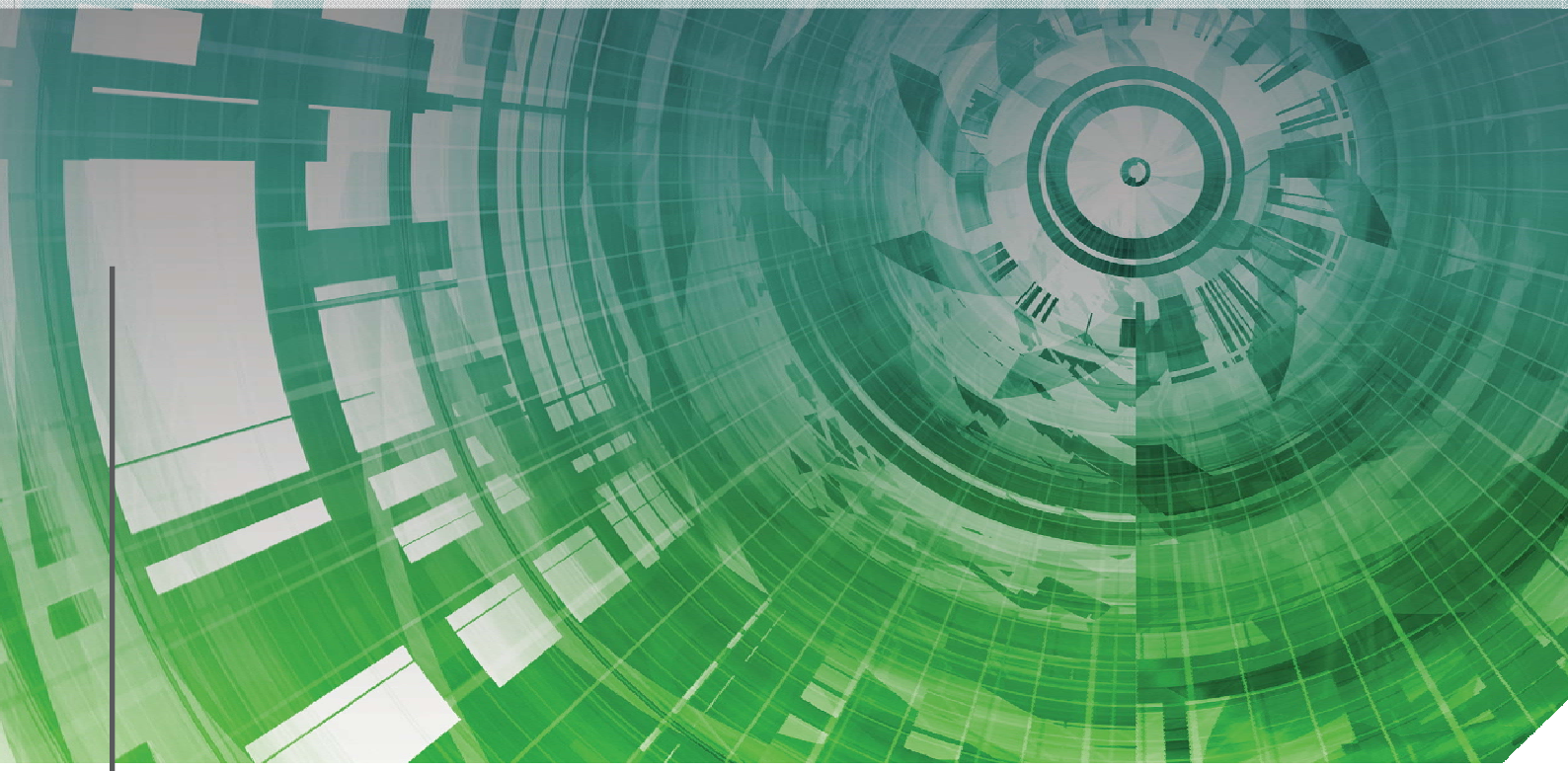


Self-Supervised Learning: Building Intelligent Systems Without Human Labels

Dr. Mirco RAVANELLI



Deep learning techniques are widely successful, but their effectiveness depends on the quality of the learned representations. These representations should capture intermediate concepts, features, or latent variables, and are commonly learned in a supervised way using large annotated datasets. However, this approach has crucial limitations, such as the cost and time required to collect large amounts of annotated examples and the biased representations towards the considered problem, hindering their exportability to other problems and applications. Unsupervised learning offers a potential solution by attempting to extract knowledge from unlabeled data and discovering representations that capture the underlying structure of such data. Self-supervised learning, a subfield of unsupervised learning, is rapidly revolutionizing computer vision, NLP, and speech processing fields. In this talk, I will review recent progress in self-supervised learning, particularly in the sequence processing domain. I will discuss my recent efforts to develop general, robust, and transferrable representations of speech signals using self-supervised approaches.

Mirco RAVANELLI (mirco.ravanelli@concordia.ca) is an assistant professor at Concordia University and an adjunct professor at Université de Montreal. He is also a Mila associate member, where he did a postdoc under the supervision of deep learning pioneer Prof. Yoshua Bengio (Turing award 2018). His primary research interests are in deep learning and Conversational AI, and he has authored or co-authored over 60 papers on these topics, for which he has received national and international awards. In 2023, he was one of the recipients of the Amazon Research Award. Dr. Ravanelli received his Ph.D. from the University of Trento with cum laude distinction in December 2017. He is an active member of the speech and machine learning communities, and he founded and leads the SpeechBrain project, which aims to develop an open-source toolkit for conversational AI and speech processing.

Schedule

- When: May 25, 2023, h. 11:00
- Where: *onsite* in **Room 2R**, Dipartimento di Ingegneria Civile, Ambientale e Meccanica, Via Mesiano 77, Trento and *online* at **https://t.ly/nC99**

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