

Colloque du
Département d'Informatique et de Recherche Opérationnelle

Roland Memisevic – *University of Frankfurt, Germany*

Learning to relate images

Abstract:

Real-world data is not random: The variability of data-sets that arise in computer vision, robotics, AI and related areas is often highly constrained and is governed by a number of degrees of freedom that is much smaller than the superficial dimensionality of the data. Unsupervised feature learning is an effective way to extract the hidden causes of variability in data, and it allow us to understand and to process data efficiently and automatically. In this talk I will describe a variation of unsupervised learning, that makes it possible to encode how several data-sets are related to one another. I will argue that learning about relations can extend the reach of unsupervised learning, because in real-world problems the relationships between observations often carry more information than any single observation by itself. I will present various examples from computer vision, where learning to encode relations can help infer depth from stereo images, perform invariant recognition, or understand human activities in videos.

Biosketch:

Roland Memisevic received the PhD in Computer Science from the University of Toronto in 2008. Subsequently, he held positions as a post-doctoral fellow at the University of Toronto, as a research scientist at PNYLab LLC, Princeton, and as a post-doctoral fellow ETH Zurich, Switzerland. In 2011, he joined the department of Computer Science, University of Frankfurt, Germany, as an assistant professor in Computer Science. His research interests are in machine learning and computer vision, in particular in unsupervised learning and feature learning.



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Information : Pierre L'Ecuyer, <http://www.iro.umontreal.ca/~lecuyer/>