

The Role of multi-linear Factorization in Image Coding, Clustering and Visual Learning

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I will present a bird's eye view of novel connections between the task of factorizing measurements arranged in multi-way arrays (tensors in general) to problems in image coding, clustering, multi-body segmentation and general latent class model used in various inference tasks (such as the "bag of words/visterms"). The common element among those tasks is shown to be reduced to a problem of finding a decomposition of the input (multi-way) array G as a sum of rank-1 arrays (in some cases super-symmetric) under certain simplex constraints.



BIOGRAPHY

Amnon Shashua was the head of the School of Engineering and Computer Science at the Hebrew University of Jerusalem during the term 2003-2005. He received his Ph.D. degree in Computational Neuroscience, working at the Artificial Intelligence Laboratory, from the Massachusetts Institute of Technology (MIT), in 1993.

His research interests are in Computer Vision and Machine Learning. His work includes early visual processing of Saliency and Grouping mechanisms, Visual Recognition and Learning, Image Synthesis for Animation and Graphics, theory of Computer Vision in the areas of multiple-view geometry and multi-view tensors, and multilinear algebraic systems in Vision and Learning. His work on multiple-view geometry received the "best paper award" at ECCV'2000 and the honorable mention to the MARR prize in ICCV'2001.

Amnon Shashua received the 2004 Kaye Innovation award, and the 2005 Landau award for Science and Research in the area of exact sciences - Robotics.

He is the founder of CogniTens Ltd. (founded 1995), and MobilEye Vision Technologies (founded 1999).

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Garden Key 221AB, Student Union
<http://www.cs.ucf.edu/~vision>