HPI Kolloquium
14.06.2018, 16.00 Uhr

Hasso-Plattner-Institut, Hauptgebäude, Hörsaal 1
Campus Griebnitzsee, 14482 Potsdam

"A spectral view of Geometry Analysis"

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Abstract

The Laplace-Beltrame operator (LBO) is the extension of the Laplacian to non-Euclidean domains. Its spectral decomposition has many physical interpretations and can be numerically computed on various discrete domains ranging from point clouds to volumetric images. In this talk, I will review several computational shape analysis problems in which the LBO spectral decomposition has established itself as particularly useful. I will specifically highlight the notions of similarity and correspondence between geometric shapes and more abstract manifold- or graph-structured data, which are central to many tasks in geometry processing, computer vision, computer graphics, and machine learning. I will overview a set of recent techniques that greatly facilitate the computation of mappings or correspondences between geometric datasets.

Short CV

Alex Bronstein is an associate professor of computer science at the Technion – Israel Institute of Technology a principal engineer at Intel Corporation. His research interests include numerical geometry, computer vision, and machine learning. Prof. Bronstein has authored over 100 publications in leading journals and conferences, over 30 patents and patent applications, the research monograph "Numerical geometry of non-rigid shapes", and edited several books. Highlights of his research were featured in CNN, SIAM News, Wired. Prof. Bronstein is a Fellow of the IEEE for his contribution to 3D imaging and geometry processing. In addition to his academic activity, he co-founded and served as Vice President of technology in the Silicon Valley start-up company Novafora (2005-2009), and was a co-founder and one of the main inventors and developers of the 3D sensing technology in the Israeli startup Invision, subsequently acquired by Intel in 2012. Prof. Bronstein's technology is now the core of the Intel RealSense 3D camera integrated into a variety of consumer electronic products. He is also a co-founder of the Israeli video search startup Videocites where he serves as Chief Scientist.

Host: Prof. Dr. Emmanuel Müller