Graz University of Technology

Institute of Geometry

Gastvortrag

21.6.2018, 9:00

Seminarraum 2, Geometrie

Computing indecomposable decompositions of persistence modules

Emerson Escolar

(RIKEN (Japan))

The indecomposable decompositions of persistence modules play an important role in understanding their structure. Especially in the case of persistence of a filtration, the indecomposables (the building blocks) are intervals, and have the interpretation as lifespans of topological features. We discuss the computation of indecomposable decompositions of some more general persistence modules. In particular, we focus on the 2 by n commutative grid (called commutative ladders) and provide an algorithm for the representation finite case ($n < 5$) via matrix problems, from which persistence diagrams can be obtained. We also describe some problems and complications in the representation infinite case.

Short bio: Emerson is currently a postdoctoral researcher in the Topological Data Analysis Team of the Center for Advanced Intelligence Project at RIKEN (Japan). Research interests include topological data analysis, representation theory, and computation. Website: https://emerson-escolar.github.io/index.html

Michael Kerber