

Higher order Data Loci

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This talk presents recent joint work with Kemal Rose and Luca Sodomaco on the concept of higher-order data loci, a geometric refinement of the classical Euclidean Distance Degree (EDD). Motivated by optimization problems where curvature and higher-order contact matter, we introduce the higher-order Euclidean Distance Degree and define the associated higher-order ED data loci, which describe configurations where critical points satisfy osculating conditions beyond first-order tangency. Using jet bundles and higher-order polar classes, we derive a closed formula for the higher order EDD and provide a geometric framework to compute and interpret these loci.