Applied Mathematics Seminar

Dr. Yemeen Ayub – Michigan State University- Engineering

Friday, April 17 1-1:50pm

MAK A-2-610 (PCS) or via zoom (request password from ortizron at gvsu dot edu)

Applications of the Euler Characteristic Transform for Biological Shape Analysis

Abstract: The Euler Characteristic Transform (ECT) assigns to an embedded shape or simplicial complex a family of Euler characteristic curves obtained by sweeping a half-space through the object across many directions. This representation provides a compact, computable summary that couples geometry (via directional projections) with topology (via the Euler characteristic), and it is provably informative. By representing outlines as image-like topological signatures, ECT works naturally with deep learning for classification, reconstruction, and prediction. Across leaves, pavement cells, and large herbarium datasets, we demonstrate that the ECT captures biologically meaningful variation and supports accurate prediction of both shape and venation.

Applied Math Seminar- Pizza RSVP

More info: http://bit.ly/applied-math-seminar

**Hosted by the Mathematics Department, GVSU