



Mathematical Sciences 2026 Colloquium Series

Dr. Sarah Percival, Department Math and Statistics, University of New Mexico.



April 24, 2026, at 3:00pm
Bell Hall, Room 130 and online
via Zoom *Scan the QR-code to access
the link.*



G-Mapper: Learning a Cover in the Mapper Construction

The Mapper algorithm is a key visualization technique in TDA, producing a graph that reflects the structure of a dataset. However, its effectiveness depends on several tunable parameters, including the choice of the cover. We present G-Mapper, an algorithm that optimizes the cover selection in the Mapper construction by iteratively applying a statistical test for normality. Our method is inspired by G-means clustering and employs a Gaussian mixture model to determine cover splits based on data distribution. Experiments on synthetic and real-world datasets show that G-Mapper produces more informative Mapper graphs while significantly improving computational efficiency over existing methods.

Hosted by: Dr. Nikola Milicevic.

For further information, please contact Dr. Emil Schwab, eschwab@utep.edu