



**Idaho State  
University**

Mathematics  
and Statistics

**Graduate & Undergraduate  
Colloquium**

# Distance metric learning: from diverse domains to enhanced optimization

**Dr. Maryam Bagherian**

Assistant Professor, Idaho State University

Abstract: Metric learning serves as an approach for uncovering hidden structures within high-dimensional spaces. Through the acquisition of a suitable distance metric, algorithms reliant on distance measurements can more effectively capture the inherent structure of data points, resulting in enhanced performance. In contrast to single metric learning methods, the effectiveness of multi-metric and geometric metric learning becomes evident in handling intricate data distributions and diverse data characteristics. These alternative approaches offer heightened flexibility and interpretability, making them especially valuable for representation learning in intricate non-linear multi-modal datasets. In this context, I provide a concise introduction to the concepts of distance metric learning and introduce methods for extending its applicability to high-dimensional spaces, graphs and manifolds.

**Tuesday, Sept. 17**

**3:45 pm**

**PS 307**

*and*

**Zoom Meeting ID: 889 2242 8350**

*For colloquium guests, refreshments begin at 3:15 pm*