

1125-55-1266      **Peter Bubenik\*** ([peter.bubenik@ufl.edu](mailto:peter.bubenik@ufl.edu)). *An Introduction to Topological Data Analysis*.

I will give an introduction to how topology can be used to summarize the geometry of data in a way allows further analysis using statistics and machine learning. Here are the key ingredients. Data is encoded geometrically. Tools from topology are used to convert this to algebra. A fundamental algebraic result and accompanying matrix algorithm allows us to compute an elegant summary. We then map this to a Hilbert space. I will show how these ideas apply to a biological application. (Received September 15, 2016)