1154-L1-1694 **Derek L Margulies*** (dmargu2@students.towson.edu) and **Christopher R Cornwell**. *An Application of the Mapper Algorithm to Sports Analytics in College Basketball.* Preliminary report.

We use a novel method to analyze data from college basketball games. The data are obtained from the play-by-play logs from games played by Towson University's Men's Basketball team. After initial preprocessing, a set of data points is created, one for each of several time intervals during each game, and for each on-court player. The data points come from Oliver's Four Factors for that player during the time interval. A plus/minus statistic is also calculated and associated to each point.

We visualize this data set with a network of nodes and edges, i.e. a *graph*, by using the Mapper algorithm (Singh, Mémoli, and Carlsson 2007). The development of Mapper was inspired by a construction in topology and has produced useful insights in data exploration.

In our use of Mapper, we consider points with similar Four Factor stats as part of the same node. A metric is used to add in edges as Four Factor stats vary, and the variation of a plus/minus statistic is seen as you traverse the graph. The goal is to find Four Factor profiles that consistently appear together on the court and in conjunction with a very positive or very negative plus/minus statistic. Such knowledge may be applied by the coaching staff to identify optimal lineups at key moments in games. (Received September 16, 2019)