1145-62-917 **Julie Zhang*** (jyzhang@uw.edu), 2512 201st Place SW, Lynnwood, WA 98036, and **Adam Quinn Jaffe**, **Theodore Faust** and **Marvin Pena**. *Comparing Object Correlation Metrics for Effective Space Traffic Management.*

In the near future, the number of satellites in Low Earth Orbit (LEO) is expected to grow tenfold. Therefore it is important to determine optimal space traffic management systems under various conditions. One essential part of space traffic management is the problem of object correlation: Given an a priori distribution of each object in space at a given time and noisy measurements of unknown objects at a later time, how can one best associate each measurement to an object? This process of correlation depends on the choice of metric to quantify the likelihood that a certain measurement pairs with a certain object. Many metrics are already defined and explored in the literature, such as Mahalanobis, Bhattacharyya, Kullback-Leibler, and Optimal Control Distance. We contributed to this discussion a flexible simulation framework for comparing the performance of these metrics in a variety of scenarios while varying many simulation inputs. We focused our analysis on the cases where satellites move towards a pinch point or move away from a pinch point, as well as a case that simulates a more realistic LEO-type environment. The data shows a preference for Mahalanobis overall, although other metrics are superior in a few cases of interest. (Received September 17, 2018)