Title: Towards a Next Generation Green Data Center

Presenter: Michael Pawlish

Advisor: Aparna S. Varde, vardea@mail.montclair.edu, ext.4292

Abstract (200 words): Knowledge Discovery in Databases (KDD) or Data Mining is a relatively new branch of research that draws origins from computer science, database technology, statistics and other disciplines in a quest to discover interesting, novel and useful patterns in large databases. In this study, an interdisciplinary approach focuses on an environmental management perspective to increase energy efficiency, lower carbon emissions, and enhance greater resource efficiency in data centers. The hypothesis is that data centers are being underutilized which leads to wasted resources. Working with the Office of Information Technology at Montclair State University, we are seeking patterns for enhanced performance of the data center. Our previous research reports, as well as published studies, have determined that data centers use tremendous amounts of electricity, contribute to increasing global carbon footprint trends, and tie up large amounts of natural resources in the creation of the many components of data centers. We examine such factors as the utilization rate that determines at what percentage the data center is being fully maximized while monitoring performance metrics. Initial results suggest that next generation data centers may shift to cloud providers due to economies of scale and greater resource efficiency.

Interdisciplinary Focus (200 characters): The research combines a Ph.D. in Environmental Management working collaboratively with the Computer Science Department and Office of Information Technology.