

STUDENT RESEARCH WEEK

POSTERS • TALKS CREATIVE WORK

MacEwan University WiFi Analysis

Talk: James Prince

Bachelor of Science: Mathematical Sciences, MacEwan University

Alan Yong

Bachelor of Science: Mathematical Sciences, MacEwan University

Faculty mentor: Dr. Cristina Anton

Arts & Science: Mathematics and Statistics, MacEwan University

Abstract

One of the worst feelings in the world is waiting for a slow Internet connection. While this may be more a reflection of our impaired society than a faulty modem, this study will shed some light as to soothe these pains while on MacEwan University Campus.

MacEwan University has recently undergone a "WiFi Renovation", with many new WiFi units installed all throughout the school. The goal of this experiment is to find where in the school are the strongest and weakest connections. This will be an interesting reflection on the new system effectiveness and coverage.

The factors that will be tested for are the Location in the school, Time of Day, Day of the Week and Type of Device used, and blocking will be done on the last four factors. To measure the connection quality, a file of a pre-determined size will be downloaded and the time taken will be recorded. Alan will be using an Apple Iphone, and James will be using a Samsung Galaxy S3, which will eliminate the chance of a newer device being different than an older one, or an Apple device vs an Android. This study will determine which factors are significant, and which factor combination yields the best results in terms of WiFi connectivity.

This method of mapping a WiFi system will be useful to students and to the IT management of the University because the results of this study will provide the school with information which will help plan for future changes to WiFi layout. An easy extension of the methodology of this experiment could be developed and used to assess any WiFi or cellular device service. The results from this experiment alone will be interesting, but a larger application of the method could be groundbreaking.