



## COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

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SCHOOL OF COMPUTER SCIENCE

# MSc Seminar

**Thursday June 30, 2022 at 10:30am via Zoom**

**Abdul-Muizz Kelani**

*Feature Based Transfer Learning Intrusion Detection System*

**Advisor:** Dr. Charlie Obimbo

**Advisory:** Dr. Fangju Wang

### **Abstract:**

Recent Cyber security breaches, including the May 2022 one in Texas, in which an audit revealed data leaks in their Insurance Department, and a string of other major breaches by the hacker group LAPSUS, who breached Microsoft and other companies in the same year, have demonstrated the need for better security, and in particular better Intrusion Detection Systems (IDSs).

Whereas as previous IDSs have successfully used signature-based attacks for known intrusions, anomaly IDSs have become more important due to their better assessment of Day-0 attacks. In particular, Mandali and Obimbo applied Transfer Learning using Deep learning to the CICIDS2017 dataset and demonstrated that the Transfer Learning not only improved the F1-scores and Detection Rate, but also reduced the False Negative Ratio.

However, the application of the Transfer Learning was done on the same dataset. Our study will embark on transferring the learning between dissimilar data and datasets, using the feature learning. The datasets we have, so far, chosen are CICIDS2017 and USB-IDS.