

Exploring the Prospects of Geospatial Artificial Intelligence (GeoQAI) for Crime Intelligence

Makhamisa Senekane^{1,2}

1 Institute for Artificial Intelligence Systems, University of Johannesburg , Johannesburg, South Africa

2 National Institute for Theoretical and Computational Sciences, Stellenbosch, South Africa

Geospatial artificial intelligence (GeoQAI) entails the deployment of artificial intelligence (AI) using the geospatial data. Thus, in essence, GeoAI fuses together AI and geospatial science. The quantum version of GeoAI is geospatial quantum AI; which fuses together quantum machine learning (QML) and geospatial science. In this work, we explore the prospects of applying QML for crime intelligence. In essence, work is intended to expand the use-cases of quantum machine learning. Furthermore, in order to explore the prospects of QML in crime intelligence, two quantum machine learning models were used, namely the quantum neural networks (QNN) and the quantum support vector machine (QSVM) with the Kaggle crime dataset being used in this study. The results obtained do not demonstrate any significant advantage over a classical counterpart. However, it is worth noting that this work is still preliminary, and hence the models were not optimized. It is plausible that the future work might identify a meaningful quantum advantage of using quantum machine learning over its classical counterpart. This possibility warrants further investigation of GeoQAI for crime intelligence.