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FACULTY OF APPLIED SCIENCES

Department of Computer Science

**TITLE: AN INVESTIGATION OF THE USE OF MACHINE LEARNING BY
SMALLHOLDER FARMERS.**

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Abstract

Zimbabwe's economy is an agro based economy and contributes 11-14% of the GDP. However the bulk of farming activities which contribute to the agricultural economy is done by small holder farmers. It is against this background that this research was conducted. The aim of the research was to determine how small holder farmers could benefit from adopting machine learning based applications in agriculture. The research framework was based on the Technology Acceptance Model which was used to assess whether the small holder farmers would be willing to accept machine learning applications in their day to day activities. Questionnaires were used to collect quantitative data and 2 focus groups were conducted to get qualitative data. In depth interviews of stakeholders (scientists, Agritex officers, research associates) in the agricultural sector were also conducted in order to assess how these stakeholders also felt about adopting and using machine learning. The statistical package SPSS V25 was used to analyze the data. Data was presented in the form of graphs, pie charts and tables. Results indicated that a greater percentage of small holder farmers had no idea of the term 'machine learning', had limited or no access to the internet and most had seen a machine learning application in use but had no idea of the technical terms for them. Results also showed that these applications are mainly found in commercial farming in Zimbabwe. Only a few farmers had access to machine learning applications in the form of irrigation at Agritex training centers and service centers. At the end of our research we made recommendations that would help these farmers in the adoption of this technology that is so essential in helping them achieve more.