

**Title:** A Voice Driven Chess Game using Gaussian Mixture Model and Kaldi for Linux based Computers

**Authors:** Gerric Bonn Cancino, Jackneil De las Alas, Romeo Empas, Jr.

## **ABSTRACT**

Speech recognition empowers the utilization of voice commands to perform operations, such as, translation of spoken words into text also known as Automatic Speech Recognition (ASR). It is widely used in controlling an application through voice command. Creating a chess game application with the use of voice command requires intensive understanding in speech recognition and extensive time to complete the task. In this study, the relevance of Gaussian Mixture Model (GMM) and Kaldi toolkit on ASR for controlling chess game through voice command is described. The voice commands are built with GMM-based acoustic model which consists of a language model, vocabulary and lexicon components created along with Kaldi toolkit decoder in order to recognize a voice input and issue specific chess game functionality. To prove the effectiveness and efficiency of the application in recognizing the voice command, it has undertaken several hardware, software, and environmental testing activities.

**Keywords:** Speech Recognition, Gaussian Mixture Model (GMM), Kaldi, Automatic Speech Recognition (ASR), Chess game