

## الآية

﴿اللَّهُ لَا إِلَهَ إِلَّا هُوَ الْحَيُّ الْقَيُّومُ لَا تَأْخُذُهُ سِنَّةٌ وَلَا نَوْمٌ لَهُ مَا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ مَنْ ذَا الَّذِي يَشْفَعُ عِنْدَهُ إِلَّا بِإِذْنِهِ يَعْلَمُ مَا بَيْنَ أَيْدِيهِمْ وَمَا خَلْفَهُمْ وَلَا يُحِيطُونَ بِشَيْءٍ مِّنْ عِلْمِهِ إِلَّا بِمَا شَاءَ وَسِعَ كُرْسِيُّهُ السَّمَاوَاتِ وَالْأَرْضَ وَلَا يَئُودُهُ حِفْظُهُمَا وَهُوَ الْعَلِيُّ الْعَظِيمُ﴾

سورة البقرة الآية رقم (255)

# **DEDICATION**

My Dearest Parents Eng. Mohamed Mohamed Al-Hasan and Teacher

HawaAbaker Ibrahim for their love and blessings.

To My my dearly brothers and friends for their companionship and support.

To My dearly brothers and colleagues For support advice and good ideas.

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"In the name of Allah, The Most Gracious The Most Merciful"

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## **ABSTRACT**

Linear induction motor is a special purpose motor with enhanced versatility of operation compared to rotary induction motor. In This thesis a simulation model for the linear induction machine as an electromechanical system was built. It was built corresponding to all governing equations implied to analyze the dynamic response of the machine, first a primary control system to obtain the desired speed and thrust at normal conditions using look-up tables was developed then a feedback control system is implemented to analyze the controlled response of the machine to overcome disturbance force and change in the desired speed reference.

## المستخلص

الماكينة الحثية الخطية هي ماكينة خاصة ذات تعددية استخدامات تشغيلية مقارنة مع الماكينة الحثية الدوارة. في هذا البحث تم بناء نموذج محاكاة للماكينة الحثية الخطية, تم بناء النموذج بحيث احتوى على كل المعادلات الحاكمة في تحليل الاستجابة الديناميكية للماكينة, في البداية تم تصميم نظام تحكم أولي باستخدام جداول الاستكمال للحصول على السرعة المطلوبة و قوة الدفع المطلوبة في الظروف العادية , بعد ذلك تم استخدام نظام تحكم ذو تغذية عكسية من النوع التناسبي\_التكاملي لاستعادة الإستقرارية للنظام بعد تعرضه لقوى اضطراب و تغيير في السرعة المرجعية المطلوبة و من ثم تم تحليل و مناقشة أداء النظام.

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