

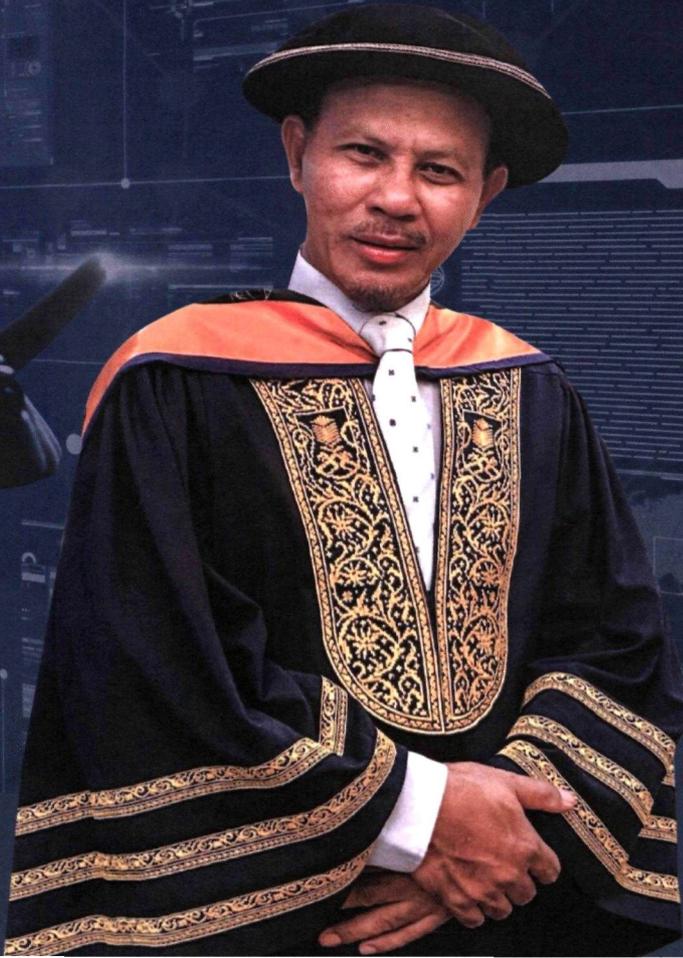


UNIVERSITI  
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MARA

# POWER SYSTEM SECURITY

APPRECIATING THE PRESENCE OF  
ARTIFICIAL INTELLIGENCE

Ismail  
Musirin



UiTM  
Professorial  
Lecture

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UiTM Press is a member of  
**MALAYSIAN SCHOLARLY PUBLISHING COUNCIL**



Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available  
from the National Library of Malaysia

ISBN 978-629-496-054-1

Cover Design : Farah Fadhliyatun Mahadi

Typesetting : Nurhunaina Mohd Bani

Printed in Malaysia by : UiTM Printing Centre  
College of Creative Arts  
Universiti Teknologi MARA  
40450 Shah Alam  
Selangor

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## **CHAPTER 1** **1**

### UNDERSTANDING THE ARTIFICIAL INTELLIGENCE IN POWER SYSTEM

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# PREFACE

In an era marked by technological advancements and increasing dependence on electricity, ensuring the security of power systems has never been more critical. This book explores the profound impact of artificial intelligence (AI) on maintaining and enhancing the security of power systems. It is designed to provide readers with a thorough understanding of how AI can be harnessed to address the multifaceted challenges of modern power grids. Power System and Understanding the Artificial Intelligence serves as the cornerstone of this book. It introduces readers to the fundamental concepts of power systems and the pivotal role AI plays in their operation. The chapter also examines real-world blackout events in Malaysia, providing a contextual backdrop that underscores the importance of robust power system security. By discussing the experiences of electric utilities in Malaysia, readers gain insights into the practical challenges and opportunities associated with integrating AI into power systems. Subsequent discussion on Intelligent Distributed Generation Installation in Voltage Security Improvement delves into the critical issue of voltage security. Power system compensation and distributed generation (DG) describe various methodologies for assessing and enhancing voltage security, illustrating how AI can significantly improve these processes. Examples of results from practical applications demonstrate the effectiveness of AI-driven techniques in maintaining voltage security.

# **ACKNOWLEDGEMENT**

I would like to extend my deepest gratitude to several individuals and institutions whose support and encouragement have been instrumental in the completion of this book.

First and foremost, I am immensely grateful to the Assistant Vice Chancellor, College of Engineering, Prof. Ir. Dr. Hamidah Mohd Saman, for granting me the opportunity to deliver my Professorial Lecture. This platform allows me to share my knowledge and experience on this relevant topic with a diverse audience, including colleagues and students.

My heartfelt gratitude also goes to my esteemed colleagues at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM). Your continuous support and motivation have been vital in bringing this book to fruition. Your encouragement has been a source of strength and inspiration throughout this journey. I would like to express my appreciation and gratitude to my postgraduate students for their recognition and collaboration. Your hard work and dedication have significantly contributed to the research presented in this book. Additionally, I extend my thanks to my current research students for their ongoing commitment and contributions.