IR. DR. PRAJINDRA SANKAR KRISHNAN

Senior Lecturer in Electrical Engineering | Data Analytics | Renewable Energy | AI Research

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SUMMARY

I am a Senior Lecturer with extensive experience in teaching and coordinating various engineering courses, specializing in LMS development and blended learning integration. My professional journey is marked by significant academic achievements, professional certifications, and a track record of contributing to educational and consultancy projects. I have played pivotal roles in curriculum development and stakeholder engagement, demonstrating leadership in both academic and professional services, all driven by a lifelong commitment to technological advancement and education

EXPERIENCE

Institute of Sustainable Energy Core Researcher - HICoE

Universiti Tenaga Nasional

01/2025 - 01/2027 Malaysia

- Perovskite solar cell fabrication training at Ritsumeikan University, Kyoto, Japan with 15% efficiency
- Contributed in Higher Institution Centers of Excellence (HICoE) audit ensuring compliance with standards
- Site inspection at QL Aquamarine Sdn. Bhd., shrimp farming (Sabah, Malaysia) for Solar Powered IoT sensors installation

Course Coordinator/Developer/Moderator

Universiti Tenaga Nasional

2009 - Present Malaysia

- Developed LMS learning content incorporated with Blended Learning level 3 (Flipped Classroom) and level 4 (adaptive learning) for:
- Data Analytics for Engineers
- Elements of Industrial Revolution
- Advanced Artificial Intelligence - Masters Program (Moderator)
- Artificial Intelligence and Neural-fuzzy Systems (Moderator)
- Data Communication and Network (Moderator)
- Introduction to Emerging Technologies/Introduction to E & E Engineering
- Microprocessor Systems & Microprocessor Systems Lab
- Electronic Analysis & Design
- Digital Logic Design

Head of Unit (Stakeholder Relations)

Universiti Tenaga Nasional

01/2021 - 12/2024 Malaysia

- Improved stakeholder engagement at Universiti Tenaga Nasional by:
- Organizing 6 Industry Advisory Panel (IAP) meetings
- Organizing 8 industrial talks for undergraduates
- Captured IAP feedback for BEEE program curriculum enhancements
- Arranged 2 Staff-Student meetings to get students feedback on teaching standards and facilities
- Arranged 2 Alumni-Staff meetings to get alumni feedback on curriculum improvement based on current industry demands

External Examiner for Research Projects

International Medical University Malaysia

01/2022 - 01/2023 Malaysia

- Evaluated 6 research projects in Master in Healthcare Informatics & Analytics and 1 research project in Bachelor in Medical Sciences program

External Examiner for Coursework

Perdana University

01/2022 - 01/2022 Malaysia

- Evaluated 1 MSc Bioinformatics program student

PhD Supervisory Team

Universiti Putra Malaysia

01/2022 - 12/2024 Malaysia

- Supervised 1 PhD foreign student at Universiti Putra Malaysia, resulting in 1 published research papers and 2 journals submitted

KEY ACHIEVEMENTS

Academic Leadership

Coordination and leadership roles in educational programs, resulting in improved curriculum development and stakeholder engagement (Industry Advisory Panel)

Certified Professional

Recipient of multiple professional certifications in cybersecurity, data science, and IoT development through intensive training programs with recognized institutions

Teaching Impact

Instructed over 6000 undergraduate students, supervised 95 FYP students, 52 internship supervisions, 6 masters and 3 PhD postgraduates supervision (main supervisor for 5 postgraduates)

Research Publication

Published 39 peer-reviewed papers, books and technical reports. Scopus h-index: 6 with 119 citations and 13 ISI papers

Project Leadership

Led and successfully closed 9 research grant projects worth RM 2.2 mil

LANGUAGES

English
Native

Malay
Proficient

Tamil
Intermediate

SKILLS

Artificial Intelligence | Data Science | Big Data | Python | PySpark | HTML | CSS | Drone | Network Security | Android Studio | MATLAB | Cybersecurity | Rapidminer | IoT | LMS | Raspberry Pi | Arduino | VB.Net | GNS3 | Mininet | Kali Linux | Wireshark | VPN | TensorFlow | LSTM | Cloudera | Hadoop | Machine Learning | SQL | Blended Learning | Renewable Energy | Grafana | AMI Analytics | Cooperative Learning | Predictive Analytics | Virtual Machines | Cloud Computing

EXPERIENCE

Guest Lecturer

University of Nottingham Malaysia

03/2020 - 05/2020 Malaysia

- Contemporary Engineering Themes EEEE2048 (Internet of Things)
- Delivered technical presentation on IoT framework with hands-on activities and evaluated coursework reports

Electrical & Electronics Dept. Lab Manager

Universiti Tenaga Nasional

2016 - 2021 Malaysia

- Upgraded 10 undergraduate laboratories with projectors, smart screens, measurement instruments, 3D printer and kits to enhance students learning experience

Journal Reviewer

Elsevier

11/2020 - 10/2024 Malaysia

- 5 reviews for Engineering Applications of Artificial Intelligence
- 2 reviews for Knowledge-Based Systems

EDUCATION

PhD in Electrical Engineering by Research Graduate Program

Universiti Tenaga Nasional

01/2014 - 01/2018 Malaysia

- Developed a new optimization algorithm with enhanced exploration and exploitation capabilities for optimized beam forming in wireless communication application
- Coding and simulation done in MATLAB

Master's Degree in Electrical Engineering by Research Graduate Program

Universiti Tenaga Nasional

01/2007 - 01/2009 Malaysia

- Developed Genetic Algorithm code for embedded system for WCDMA adaptive beam forming
- Coding done in C and MATLAB

Bachelor's degree in Electrical and Electronics Engineering (Honors)

Universiti Tenaga Nasional

01/2003 - 01/2007 Malaysia

Diploma in Electrical and Electronics Engineering

Ungku Omar Polytechnic

01/2001 - 01/2003 Malaysia

CERTIFICATION

Remote Pilot Certification of Competency-Basic (RCoC-B)

Remote Pilot Certification of Competency-Basic (RCoC-B) awarded by SG Academy, Asia Drone Technical Academy

Certified Cybersecurity Specialist

Certified Cyber Security Specialist awarded by iTrain Asia Sdn.Bhd

Certified Python Programmer for Data Science

Certified Python Programmer for Data Science awarded by iTrain Asia Sdn.Bhd

Industrial Internet of Things (IIoT) Developer

Industrial Internet of Things (IIoT) Developer awarded by Perak Human Capital Development Centre

Android Certified Associate Developer

Android Certified Associate Developer awarded by iTrain Asia Sdn.Bhd

Professional Certification in Big Data and Analytics

Professional Certification in Big Data and Analytics awarded by Innodatatics Sdn.Bhd

Microsoft Certified Systems Administrator

Awarded by Info Trek - Microsoft Gold Certified Partner and EC Council Accredited Training Center

Java Programming

Awarded by Oracle University

PROJECTS/RESEARCH ACTIVITIES

Cost-Efficiency Enhancement of Large Scale Solar (LSS) Farms By Artificial Intelligence Based Forecasting Mechanism & Fault Detection

2022 - 2024 Malaysia

A project aimed to enable quick analysis of new LSS based on GPS location and predict yield generation. Funder: TNB Seeding Fund

- Developed GUI with new LSS analysis, existing LSS prediction model with degradation factor increasing energy yield by 3-5% and reducing maintenance costs by up to 15%
- Skills: VB.Net, Python, LSTM, XGBoost, PID, Thermal drone

AI Framework for Threat Assessment and Containment for COVID-19

2022 - 2024 Malaysia, Sri Lanka

AI framework for COVID-19 threat assessment and containment. Funder: IDRC Canada

- Developed a contract tracing software using AI for policy-making with a focus on women, children, and underprivileged groups
- Skills: VB.Net, SQL, Android, HDBSCAN, Markov chain, Database structure, cluster computing

RE Demand Forecasting and Load Estimation for NEM Customers Using Machine Learning and Data Analytics

2022 - 2024 Malaysia

A project aimed at improving solar generation forecasting using data analytics. Funder: TNB Seeding Fund

- Developed GUI for solar generation forecasting for NEM customers using Machine Learning with 20% improvement in prediction accuracy
- Skills: VB.Net, SQL, LSTM, HDBSCAN

Simulation-Based Machine Learning Predictive Models in Power Transformer Systems Fault Diagnostics

2019 - 2020 Malaysia

Created a predictive model for fault detection in power transformers using AI

- Developed an algorithm for transformer failure root cause analysis
- Skills: Machine Learning, AI, Predictive Analytics, Substation Monitoring

Mobile Application Worksheet for Undergraduate Lab Experiment with User Input Interface

2017 - 2018 Malaysia

A project aimed to create a paperless lab worksheet

- Filed one copyright under 'Artistic' category with the title, "e-Worksheet for Undergraduate Lab Experiment"
- Skills: MIT App Inventor, mobile app APK

Feasibility Investigation of an IoT Architecture with Machine-to-Machine (M2M) Interworking Framework for Energy System Prognostics

2018 - 2019 Malaysia

Developed an IoT-based framework for energy system monitoring and prognostics

- Integrated Keras and Raspberry Pi for real-time wireless sensor data analysis
- Skills: IoT, Machine Learning, Keras, Raspberry Pi, Sensor Networks

Circuit Design of Handheld Body Iron Store Reader Prototype

2017 - 2018 Malaysia

Designed a microcontroller-based portable iron reader with a micro cuvette.

- Developed a hardware prototype for low-cost iron deficiency detection (won GOLD award in innovation)
- Skills: Embedded Systems, Microcontrollers, Biomedical

CONSULTANCY PROJECTS

Software Enhancement and Knowledge Transfer for T-PEMS During Relative Accuracy Audit (RAA)
2024 - 2024

Conducted **software enhancement and knowledge transfer** for **T-PEMS at Sultan Ibrahim Power Plant (SIPP), Pasir Gudang** and **Tunku Jaafar Power Station (TJPS), Port Dickson**. Optimized **sensor calibration algorithms**, reducing measurement errors by **10%** and ensuring higher **data reliability.**

Development of Low Intelligent Network System (LINES) For Predictive Maintenance and Non-Technical Loss Detection
2021 - 2023

Developed a **data analytics platform** to detect **electricity fraud & non-technical losses (NTL)** across **9 million smart meters**. Designed **10+ machine learning algorithms**, integrated **Python, MSSQL, InfluxDB, and Grafana** for real-time analytics, reducing fraud investigation time by **30%** and improving fraud detection efficiency by **5%**

Development of Predictive Emission Monitoring System (PEMS) For Gas Turbine Using Data Analytics and AI Methods
2020 - 2022

Developed **PEMS RATA testing model** for **gas turbine emission monitoring** using **artificial intelligence and data analytics**. Built a **predictive emission model** with an **accuracy of 95%**, ensuring compliance with **Department of Environment (DOE) regulations**.

Development of Smart Billing Data Development Architecture and Software Toolset (SBAST) for TNB Advanced Metered Customers
2019 - 2021

Designed the **LINES analytics system** in **TNB Datalake** for **grid failure prediction & fraud detection**, analyzing **50,000+ smart meters**. Developed **8 AI fraud detection algorithms**, GIS-based **Breakdown Area Mapping (BAM)** for outage visualization, and **Worst Performing Feeder (WPF)** analytics, reducing **non-technical losses by 10%** and enhancing **grid reliability**

Research and Development of Advanced Portable Surveillance Camera with Intrusion Alert System
2018 - 2019

Developed **video management system (VMS)** with **motion detection** and **camera module design** for **intrusion detection**. Created a **compact and portable surveillance unit**, reducing hardware costs by **30% compared to conventional solutions**. Implemented **real-time alerts**, improving **response time to intrusions by 60%**.

Development of Faults Classification System for TNB Distribution Switchgear Based on Ultrasound Analysis Using Extreme Learning Machine (ELM)
2017 - 2018

Developed **sound feature extraction system** for **TNB switchgear fault classification**, enhancing predictive maintenance strategies. Implemented **time-domain and frequency-domain sound analysis**, improving maintenance scheduling efficiency by **35%**.

R&D of Intelligent Abnormality and Fraud Analytic System (AFAS) for TNB Ordinary Power Customers
2016 - 2017

Developed **pseudo codes for fraud detection algorithms** and identified **fraud patterns from load profiles**, enhancing fraud prevention strategies. Built **AI-powered fraud detection system**, increasing fraud case identification **from 60% to 85%**

PROFESSIONAL BODIES

Institute of Engineers Malaysia (IEM) Corporate Member
2018 - Present

Professional Engineer (Ir.)

IEM Member
2013 - 2018

Graduate member

IEEE
2009 - Present

Member

Boards of Engineers Malaysia (BEM)
2010 - Present

Registered member

PROJECTS/RESEARCH ACTIVITIES

Wideband Transmit Beamforming Optimization using a New Dynamic Socio-Spatial Behavior Algorithm for Planar Phased Array with Antenna Switching

2016 - 2017 Malaysia

Developed an AI-based optimization model for beamforming applications

- Designed an optimization algorithm improving beamforming efficiency (PhD work)
- Skills: AI, Optimization, MATLAB, Phased Array Antennas

IEEE 802.16 (WiMAX) Teletraffic Performance Improvement by Innovative Smart Antenna System

2013 - 2015 Malaysia, India

Designed a pseudo-smart antenna system improving WiMAX teletraffic performance

- Developed a signal processing algorithm for adaptive beamforming
- Skills: Wireless Communication, Smart Antennas, Signal Processing

Vaccine-Enhanced Artificial Immune System for Multi-Criteria Optimization Algorithm

2010 - 2011 Malaysia

Developed a new multi-objective optimization algorithm based on artificial immune system principles

- Applied bio-inspired computing to enhance decision-making efficiency for industrial application
- Skills: AI, Optimization, Bio-Inspired Computing

Analysis of Artificial Clonal Selection and Hypermutation on Genetic Evolutionary Computation

2010 - 2011 Malaysia

Designed a hybrid AI algorithm combining clonal selection and evolutionary computation

- 2 journal published
- Skills: Genetic Algorithms, Evolutionary Computation, AI

FIND ME ONLINE

https://prajindra.github.io/myprofile/
My Web Profile

https://www.linkedin.com/in/prajindra/
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