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Dr. Mohamed Mohandes Professor

Interdisciplinary Research Center for Renewable Energy and Power Systems (IRC-REPS) and EE Dept.
 King Fahd University of Petroleum & Minerals, Saudi Arabia

Executive Summary:

Over 20 years of experience with renewable energy data analysis and site selections for new installations. Introduced the use of machine learning algorithms for wind speed estimation and solar radiation extrapolation. Introduced the use of Drones for cleaning solar panels to improve efficiency. Conducted feasibility study for advanced metering infrastructure (AMI) in the Kingdom of Saudi Arabia. Temporal and spatial estimations of wind speed and solar radiation. Used LiDAR system to measure wind speed at different heights and developed machine learning algorithm to extrapolate wind speed at higher heights based on measurements at lower heights. Lead a team work collaborating with Georgia Institute of Technology for data compression. Lead a team work collaborating with King Abdullah University for Science and Technology on wearable electronic devices for crowd management.

Education:

- ☐ PhD Electrical Engineering [Purdue University, USA, 1993]
- ☐ MSc. Electrical Engineering [Univ. of Missouri-Columbia (UMC), USA, 1989]

Distinguished Projects

- *Project title "Improving Efficiency of Solar PV Panels using a DRONE" funding by DSR King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, Role: PI.*
- *Project title "Wind Speed and Solar Radiation Maps of Saudi Arabia" funding by NSTIP, KACST, Saudi Arabia, Role: PI.*
- *Project title "Advance Metering Infrastructure (Smart meters)", funding by Saudi Electricity Company, Saudi Arabia, Role: PI.*
- *Project title "Use of Neural Networks as Process Analyzers for Petroleum and Petrochemical Industries in Saudi Arabia" funding by KACST, Saudi Arabia, Role: Co-PI.*
- *Project title "Artificial Neural Networks Application to Wind Power Potential Assessment in Saudi Arabia as a clean Energy Resource" funding by DSR KFUPM, Dhahran, Saudi Arabia, Role: Co-PI.*
- *Project title "Study of Grid Connected Wind Farm" funding by Saudi Electricity Company, Dhahran, Saudi Arabia, Role: Co-PI.*
- *Project title "Defect Impulse Response-Based Classification Scheme in Ultrasonic Non-Destructive-Testing (NDT) Application to Hydrogen Induced Cracks" funding by SABIC, Saudi Arabia, Role: Co-PI.*
- *Project title "Smart Card System for Prince Mohammad University" funding by M.M. Al-Rumaih Company, Saudi Arabia, Role: PI.*
- *Project title "Arabic Sign Language Recognition Using An Instrumented Glove And Support Vector Machines" funding by King Slaman Center for Disability Research", Saudi Arabia, Role: PI.*
- *Project title "Translation of Arabic text to Arabic Sign Language", funding by King Slaman Center for Disability Research, Saudi Arabia, Role: PI.*

Research Summary

- Number of Published Papers: 132
- Citations : 4655
- H-Index : 31
- Number of Patents : 3 issued and 6 filed
- Book Chapters: 3
- Completed Funded Projects: 38

Award and Recognitions

- Best Research Award , KFUPM 2019.
- Fulbright Scholar 1987.
- Purdue Research Foundation Fellowship 1992.
- Tau beta Pi and Eta Kappa Nu honor societies.
- Top 2% world scientists, Stanford University.
- 2 best paper awards

Skills and Expertise

- Machine learning techniques for renewable systems data analysis.
- Using Drone to clean solar panels to improve efficiency.
- Site selection for renewable energy installations
- Advanced Metering Infrastructure (AMI)
- RFID and smart cards for identification and tracking
- Data Compression