

# **Electric motor fault detection and diagnosis for EV applications**

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**Program:** Mechanical Engineering

**Level of studies:** Ph.D.

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# Project Description

- Obtain viable solutions for fault detection and diagnosis in commercial electric motors.
- Design and develop advanced techniques and equipment for the analysis, modelling, diagnosis, and detection of faults.



# Objective

- Evaluate available FDD techniques for electric motors.
- Apply FDD techniques in an electric motor using a signal-based approach.

# Tasks/Plan

- Conduct the setup for the measurements, test and monitoring of a commercial electric motor.
- Implement the IEMSPCA algorithm for FDD in a commercial electric motor.
- Analyze obtained results and adapt the algorithm if needed.

# Expected Outcome & Deliverables

- Improve availability, speed and confidence regarding the results obtained from quality control schemes for electric motors.
- Reduce the intervention of technical personnel in final product lines, focused on companies in the automotive industry.

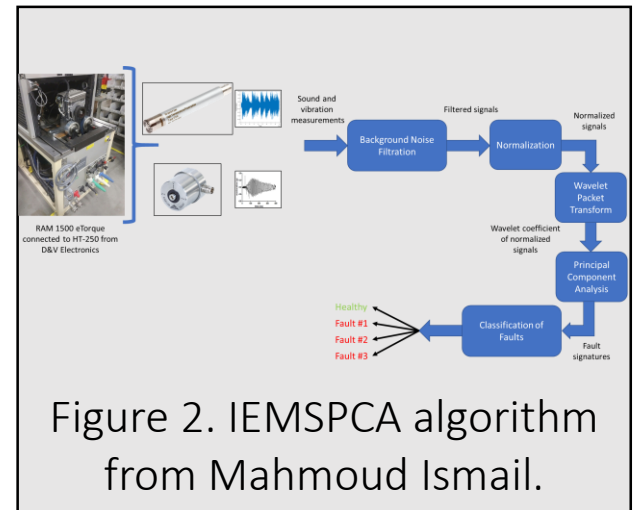


Figure 2. IEMSPCA algorithm from Mahmoud Ismail.

# Progress Report

- Literature review, understand IEMSPCA algorithm.
- The electric motor from FCA (Chrysler) used in the RAM 1500 was acquired for the project.
- The HT-250 test equipment from D&V Electronics for test the electric motor was acquired.
- Formal training by D&V Electronics will be taken for testing the electric motor.



iThanks for your attention!