CARE Research Associate

Electric Machine Design and Prototyping for Electrified Transportation

Posting period: November 9 to November 20, 2026

Planned start date: January 18, 2027

Planned end date: December 31, 2027

Principal investigator: Prof. Pragasen Pillay

Department: Electrical and Computer Engineering, Concordia University

Location: Montréal, Quebec (on site)

Work schedule: Monday to Friday, 9:00 a.m. to 5:00 p.m.

Salary and classification: $80,000 per year, Research Associate

Union: Concordia Association of Research Employees (CARE)

Languages: English is required. Knowledge of French is an asset.

Application Instructions

Submit a curriculum vitae, a brief cover letter describing your relevant experience, and a list of publications to pragasen.pillay@concordia.ca by November 20, 2026. Use “Research Associate - Electric Machines” as the email subject.

Position Description

The Department of Electrical and Computer Engineering seeks a Research Associate to conduct research on electric machine design for electrified transportation and renewable energy. The work focuses on induction and permanent magnet machines under healthy and faulted operating conditions.

Responsibilities

- Design and develop electric machine prototypes, including electromagnetic designs, mechanical components, assembly configurations and instrumentation.
- Prepare mechanical drawings and manufacturing specifications that account for tolerances, materials, machining and assembly requirements.
- Configure and operate dynamometer systems to measure induction machine torque–speed characteristics and evaluate electric machine performance.
- Develop test setups for controlled studies of winding short circuits, rotor eccentricity and permanent magnet defects.
- Acquire and analyze vibration, current, voltage, torque, speed and temperature data.
- Support graduate students, maintain laboratory equipment and prepare technical reports, research publications and equipment specifications.

Qualifications

Required Qualifications

- PhD in electrical engineering or a closely related discipline.
- Knowledge of electric machine design and hands-on experience developing and testing prototypes.
- Ability to design mechanical components for manufacture.
- Experience with vibration measurement, spectral analysis and signal processing.
- Familiarity with electrical and mechanical faults in rotating machines and their effects on machine performance.
- Hands-on experience using a dynamometer to measure induction machine torque–speed characteristics.
- Experience with laboratory instrumentation, data acquisition systems and experimental validation.
- Ability to document research clearly and work independently and with students and research collaborators.

Preferred Qualifications

- Experience with electromagnetic or thermal finite element software such as JMAG or ANSYS.
- Proficiency in MATLAB or Python for modelling, data processing and analysis.
- Experience with mechanical CAD software such as SOLIDWORKS or Autodesk Inventor.
- Familiarity with machine learning methods for temperature estimation, including transfer learning.
- Experience developing test setups that support repeatable fault introduction and restoration to healthy operating conditions.

Employment Equity

Concordia University is strongly committed to employment equity within its community, and to recruiting a diverse faculty and staff. The University encourages applications from all qualified candidates, including women, racialized persons, Indigenous persons, 2SLGBTQI+ persons, and persons with disabilities; candidates are invited to self-identify in their applications.

Immigration Status

Concordia welcomes applications from all qualified candidates. Canadian citizens and permanent residents of Canada will receive priority. For federal reporting purposes, include one of these statements in your application.

- Yes, I am a citizen or permanent resident of Canada.
- No, I am not a citizen or permanent resident of Canada.