Postdoc/PhD/MASc/MEng Graduate Research Opportunities at AIAS Laboratory Toronto Metropolitan University

Job Title	Postdoc/PhD/MASc/MEng Graduate Research Opportunities at AIAS Laboratory
Department	Aerospace Engineering http://www.torontomu.ca/aerospace
Institution	Toronto Metropolitan University Toronto, Ontario
Date Posted	May 8, 2025
Application Deadline	May 31, 2025
Position Start Date	September 1, 2025
Job Categories	Graduate Student
Academic Field(s)	Aerospace/Aeronautical/Astronautics
Job Website	http://www.torontomu.ca/~kdkumar
Apply By Email	kdkumar@torontomu.ca

Job Description

Postdoc/PhD/MASc/MEng Graduate Research Opportunitiesat

Artificial Intelligence for Aerospace Systems (AIAS) Laboratory

Department of Aerospace Engineering

Toronto Metropolitan University, Toronto, Canada

Postdoc/PhD/MASc/MEng Graduate Research Opportunities at AIAS Laboratory Toronto Metropolitan University

1) Artificial Intelligence and Machine Learning-Powered Smart Aerospace Systems

The thesis/project will focus on designing novel artificial intelligence and machine learning-based algorithms to develop smart aerospace systems. Several investigations have been conducted at the AIAS laboratory in cooperation with aerospace companies and government agencies (including NASA, Canadian Space Agency, and MHICA) on the fault diagnosis, prognosis and recovery of aerospace systems. The results on aircraft/spacecraft control systems and aircraft engines are very promising for practical applications. The proposed research aims to further enhance the performance of these algorithms using artificial intelligence, machine learning and digital twins based methodologies for real-time fault diagnosis, prognosis and recovery applications.

2) Cutting-Edge Internet-of-Things (IoT) Devices for Smart Aerospace Systems

In recent years, significant advancements have been made in the area of smart systems, enabled by the advent of micro-electromechanical systems (MEMS) and nanotechnologies. These technologies have led to the miniaturization of sensors and electronic components and the development of wireless sensors and sensor networks. Professor Krishna Kumar's AIAS Laboratory has made substantial progress in this field, focusing on sensing/actuation, prediction, and control. The overall goal of the proposed research is to design and develop an IoT device, with three main objectives. **Objective 1:** Definition of Engineering Domain: This objective involves comprehensively analyzing the problem domain (aerospace) encountered when designing smart systems. It aims to consolidate knowledge about the emerging field of smart systems and enable future innovation. Dr. Kumar’s research on miniature wireless systems will provide the foundation for this work. **Objective 2:** Development of IoT Device: This objective focuses on creating a novel IoT device with an emphasis on low power consumption, high performance, and fault tolerance. **Objective 3:** User Graphical Interface: This objective aims to develop a graphical user interface for data visualization and analysis.

If you are interested in the above areas of research or have further queries, please contact Prof. Krishna Kumar at kdkumar@torontomu.ca

Dr. Krishna Dev Kumar, P. Eng.
Professor & Director of Artificial Intelligence for Aerospace Systems (AIAS) Laboratory

President, iSAC Systems Inc.

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(a global leader in AI, IoT, and Intelligent Systems)

DAAD Visiting Professor, the Institute of Computer Science, Julius-Maximilians-University Wuerzburg, Germany

Visiting Professor, Department of Aerospace Engineering, IIT Bombay

Co-Editor, Acta Astronautica
Editor, Journal of the Japan Society for Aeronautical and Space Sciences
Member, International Academy of Astronautics
Associate fellow of AIAA
Canada Research Chair in Space Systems (2005-2015)

(Ranked among the top 100 scientists (73rd out of 45,833) in the world

and 1st in Canada in the field of Aerospace and Aeronautics by

Stanford University, https://lnkd.in/e_2qq-E)

Department of Aerospace Engineering

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Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Krishna Kumar

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