

Call for PhD Applications in Aerial Robotics at RMIT Vietnam

Physically Capable Aerial Robots for Environmental and Infrastructure Applications

Project description

The demand for aerial robots is rapidly expanding in fields such as ecological monitoring, infrastructure inspection, and disaster response. While current aerial robots are proficient at reaching and observing hard-to-reach locations, their capabilities remain constrained by limited endurance and a lack of robust interaction functionalities (e.g., limited to only seeing, not doing). Enhancing these robots to be able to provide physical services, such as sensor placement for environmental monitoring, structural inspections over time with NDE sensors, and even complex interventions (e.g., firefighting, object manipulation), would significantly broaden their application scope. This potential, bolstered by growing interest in the subfield of aerial manipulation, signals a new frontier for aerial robotics.

Despite recent progress, aerial robots still face limitations in dynamic and unpredictable environments. Current systems typically manage only basic interactions—such as single-point contacts or predefined action sequences—due to the challenges posed by floating-base dynamics, aerodynamics, and the absence of accurate proprioceptive sensing. These factors make aerial robots vulnerable to the disturbances and uncertainties inherent in unstructured environments. This research will tackle these challenges by focusing on both design and control aspects, which are intertwined and should be addressed holistically. The aim is to develop a tightly integrated approach to realize a new type of flying robot with novel capabilities. The candidate will contribute to the development of innovative aerial platforms and efficient control and planning algorithms that leverage the design, inspired by real-world applications in environmental monitoring, infrastructure assessment, and disaster response. This work aspires to advance the field, creating a new generation of aerial robots with advanced manipulation capabilities.

RMIT PhD programs

The program is open to **Vietnamese** students holding either a **Bachelor's** or Master's degree in STEM. It covers all tuition fees and provides an annual stipend of 170 million VND. The program is expected to be completed in 3–4 years, and the degree will be awarded by **RMIT University**. For more information on eligibility criteria and benefits, visit: <https://www.rmit.edu.vn/study-at-rmit/phd-programs>.

Academic advisors

Hai-Nguyen Nguyen

Lecturer in Robotics & Mechatronics

School of Science, Engineering & Technology

RMIT Vietnam, Saigon South Campus, Vietnam

<https://academics.rmit.edu.au/hainguyen-nguyen>

How to apply

Candidates should send a detailed CV along with a motivation letter to Dr. Hai-Nguyen Nguyen (hainguyen.nguyen@rmit.edu.vn). Applications will be reviewed in a rolling basis.