Job Description

Computer Vision for Smart Structure Laboratory (CVISS) at the University of Waterloo, led by Dr. Chul Min Yeum, invites applications for graduate studies (MASc, Direct Ph.D., Ph.D., Postdoc) in Civil and Environmental Engineering. Our lab focuses on practical, application-driven research, utilizing advanced technologies to integrate intelligence into the physical built environment, aiming to bolster infrastructure safety and resilience. The main task for the position will be to participate in the research projects on the development of mobile robotic sensing and analysis systems for infrastructure inspection and management and human-robot interaction for collaborative inspection. Students who have experience or knowledge in mobile robotics, computer vision, and augmented/virtual reality are recommended to apply for this position.

Qualification

Requirements

- An undergraduate, MASc, or Ph.D. degree in Civil Engineering, Computer Science, Electrical Engineering, Mechatronics Engineering, Software Engineering, or System Engineering.
- Familiarity with the Robot Operating System (ROS) 1 & 2.
- Knowledge in computer vision (e.g., Multiview geometry, SLAM), image recognition (e.g., DNN), and/or robotics (e.g., sensor fusion, mobile robotics).
- Proven expertise in drone development, spanning flight control systems like PX4, autonomous mission design, and execution.
- Comprehensive knowledge of drone hardware, sensors, and communication protocols, including MAVLink.
- Proficiency in English, both spoken and written, to communicate daily.

Preferred Qualifications

- Track record of publications in the areas of computer vision, image processing, and structural health monitoring
- Experience with GPU-accelerated computer vision algorithms.
- Experience in operating and manipulating optical sensors (e.g., color, depth camera, lidar) and sensing hardware (e.g., DAQ)
- Having prior experience with piloting a drone would be an advantageous asset.
- Familiarity with Git for version control is preferred.

Duties and responsibilities

- Coordinating research projects and delivering outputs.
- Disseminating results through scientific publications and conference presentations.
- Communicating and working with industries and stakeholders in government.
- Participating in research proposal drafting and project deliverables.
- Assisting in the organization of relevant workshops and demos.

Application

All qualified individuals are encouraged to apply for this position. The candidates should send a detailed CV to Dr. Yeum (**cmyeum@uwaterloo.ca**) with the email subject "Position Application". Before applying to the position, please review the current research in our lab (**https://cviss.net**). Dr. Yeum may ask for additional information from the candidates.

Dr. Yeum will review the applications and contact candidates who meet the criteria to arrange interviews. If you do not hear from us, it means your application did not progress to the interview stage. Selected candidates will have the opportunity to start the program in Fall 2024 or Winter 2025.

If you are passionate about applying the newest computer vision technologies to solve impactful civil engineering problems and want the opportunity to collaborate with leading industry partners, apply to our lab today!

**UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING**