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 (Direct Ph.D., Ph.D., Postdoc) in Civil and Environmental Engineering.

Our lab advances application-driven research by integrating computer vision, artificial intelligence, and robotic systems to strengthen the safety, resilience, and adaptability of infrastructure. We are particularly looking for individuals to contribute to the development of high-definition 3D mapping platforms, with research topics including:

- Design and implementation of multi-sensor scanner systems
- LiDAR-inertial-RGB SLAM algorithm development
- Development of 3DGS related techniques enhanced through multi-sensor fusion
- Development of 3DGS-based LiDAR-inertial-RGB SLAM algorithm

Additional responsibilities may include contributions to robotics integration, experimental deployment, and collaborative publication.

Qualification

Requirements

- Undergraduate, MASc, or Ph.D. degree in Civil Engineering, Computer Science, Electrical, Mechanical, Mechatronics, Robotics Engineering, or a related field
- Proven expertise in robotics development, with emphasis on experience of sensor hardware, including LiDAR, camera, GNSS devices
- Experience in LiDAR-inertial-RGB SLAM, 3DGS algorithms
- Proficiency with Robot Operating System (ROS 1 and 2)
- Knowledge of computer vision, navigation, multiview geometry, and sensor fusion
- Proficiency in programming languages such as Python, C++, C, or C#
- Excellent communication skills in English

Preferred Qualifications

- Publications in robotics, computer vision conferences or journals
- Experience with GPU-accelerated vision algorithms, RTOS, or AR/VR development (e.g., Unity)
- Hands-on experience with sensor synchronization
- Knowledge of Git and collaborative software development practices

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 Spring 2026 or Fall 2026.

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