

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. A central research objective is to design, optimize, and implement 2D and 3D processing solutions for extracting insights from drone-collected visual data. This involves close collaboration within a multidisciplinary team of engineers and researchers, pushing the envelope of innovation in our field. We seek a passionate and highly motivated individual with an interest in drone technology. The successful candidate will play a pivotal role in advancing our understanding and capabilities of drones, extending their potential in smart infrastructure applications.

Qualification

Requirements

- An undergraduate, MAsc, or Ph.D. degree in Computer Science, Electrical Engineering, Mechatronics Engineering, Software Engineering, Civil Engineering, or System Engineering.
- Familiarity with the Robot Operating System (ROS) 1 & 2.
- 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 Linux development, complemented by a background in networking technologies and video streaming tools such as GStreamer.
- Familiarity with 5G networks, including configuration, communication protocols, and deployment.
- 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 assess the applications and will reach out to candidates to schedule interviews if they meet the criteria. Upon selection, successful candidates may commence the program in either Spring 2024 or Fall 2024.

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!

