

Junior Researcher Mentoring Programme

2023

Code:	JRMP2023_05
School / Department:	Department of Building and Real Estate
Name of Research Team Member(s):	Dr Han Shuai, Research Assistant Professor Dr Shahnawaz Anwer, Research Assistant Professor Miss Wang Shuyuan, Ph.D Student
Research Topic:	Deep Learning-based Sensing Technology for Construction Safety Monitoring
Short Description of the Research Project:	<p>Construction is a high-hazard industry comprising various activities involving construction, alteration, and repair. The workers engage in many activities that may expose them to severe hazards, such as falling from height, electrocution, and being struck by machinery. As is generally recognised, construction monitoring is essential to ensure construction safety by preventing worker accidents thanks to early warnings and enabling the prompt rescue of workers. Construction monitoring includes object identification (workers, vehicles, and heavy machinery), trajectory tracking, and activity recognition. With the development of the Internet of Things (IoT), various monitoring technologies (e.g. cameras, GPS, and RFID) have emerged and are applied on construction sites. However, restricted by the development of hardware and software technology, the prevailing methods have different limitations that make them fail to surveil the complex construction environment. For example, cameras are highly dependent on light conditions, and wearable sensors may hinder the activities of workers. In this project, a new kind of sensing device, the imaging millimeter-wave radar which has been successfully applied in autonomous driving,</p>

	<p>will be tried to enrich the current construction monitoring approaches.</p> <p>The mentors will teach the participating students some simple skills about deep learning for radar data processing (e.g. data collection and data labelling), and they will be involved in designing and conducting the experiments. Besides, if they wish, the mentors can also teach them some coding skills, which will be very helpful for their future studies.</p>
No. of Places Offered:	3
Frequency of Meetings:	Bi-weekly
Special Requirement(s):	Nil

** The information presented above is subject to change.*