AI research to aid women's safety on public transport

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Dr Johan Barthelemy and Ms Yan Qian from the SMART Infrastructure Facility at the University of Wollongong. Credit: Paul Jones, UOW

World-first artificial intelligence software will target violence on public transport.

Researchers from the SMART Infrastructure Facility at the University of Wollongong (UOW) are developing software that will allow existing closed circuit television cameras to automatically identify and report suspicious or violent incidents.

The project was one of four winners of Transport for NSW's Safety After Dark innovation challenge.

"Research into women's safety revealed that girls and women do not always feel safe participating in our city at night," the brief stated.

"While many factors contribute to this, transportation was identified as an area where improvement could be made."

A team led by Dr. Johan Barthelemy will develop artificial intelligence (AI) software that will automatically analyse real-time camera feeds and alert an operator when it detects a suspicious incident or an unsafe environment.

"The AI will be trained to detect incidents such as people fighting, a group of agitated persons, people following someone else, and arguments or other abnormal behaviour," Dr. Barthelemy said.

"It can also identify an unsafe environment, such as where there is a lack of lighting.

"The system will then alert a human operator who can quickly react if there is an issue."

The data and reports automatically generated by the software can then be used to help prevent the abuse and violence committed towards women after dark in public transportation.

Helping him on the project will be Ph.D. student Ms Yan Qian, whose thesis looks at using computer vision across multiple cameras to understand traffic and pedestrian flow.

"We are using open-source code that tries to estimate the poses of a human being and predict if there's a fight," she said.

"The incident will then be reviewed by a human controller who will accept or reject the suggestion made by the artificial intelligence.

"In this way, the program will become smarter, learning in a similar way to a human being.

"As far as we know, nothing like this has been attempted globally. We are pushing the limits of the technology."

Provided by University of Wollongong