SYMPOSIUM

USING TECHNOLOGY TO REDUCE WILDLIFE-VEHICLE COLLISIONS:

Identifying future directions and opportunities for research trials.

TUESDAY 21 MAY 2024

Aerial UTS Function Centre,
Bldg 10/Level 7, 235 Jones St, Ultimo, NSW
and Online via Zoom

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Presentation materials
| Accessible here

ABSTRACT

Development of an Intelligent Road Sign to Reduce Koala Vehicle Strikes

From 1980 to 2018, an estimated 3,500 koalas were killed on NSW roads. Mitigating koala fatalities and injuries caused by vehicles is one of the most important tasks for koala conservation. This requires new technologies to be developed to detect koala movement along roads and warn vehicle drivers in real-time. We present a prototype of an intelligent road sign to expand the pool of koala conservation technology, leveraging the latest development of artificial intelligence, edge computing, and sensor technology to enable automated koala road crossing behaviour detection and driver warning. We developed a portable solution that ensures uninterrupted function for all connected devices, including an imaging module, a data processing module, a road sign, and a power supply module. In this system, a surveillance camera continuously captures images which are processed in real-time by the edge computing module. Once a target is detected and recognised as a koala, a warning message is displayed on the road sign. The computing and power solutions are all securely housed in a deployable box. This setup is ideal for locations identified as koala hotspots. We first tested our system at Lone Pine Koala Sanctuary, known for its high koala population. Subsequently, we deployed the system on Ring Road at the Nathan Campus of Griffith University, a location with potential koala sightings. The results indicate that our integrated software and hardware solution is robust and feasible as a prototype for interactive warnings to road drivers, with the potential for commercialization after further design improvement.

BIOGRAPHY

Jun Zhou received the B.S. degree in computer science and the B.E. degree in international business from Nanjing University of Science and Technology, Nanjing, China, in 1996 and 1998, respectively. He received the M.S. degree in computer science from Concordia University, Montreal, Canada, in 2002, and the Ph.D. degree from the University of Alberta, Edmonton, Canada, in 2006. He is a professor in the School of Information and Communication Technology at Griffith University, Nathan, Australia. Previously, he had been a research fellow in the Research School of Computer Science at the Australian National University, Canberra, Australia, and a researcher at the Canberra Research Laboratory, NICTA, Australia. His research interests include pattern recognition, computer vision and hyperspectral image processing with their applications to remote sensing and environmental informatics. He has led efforts in developing AI-based koala behaviour analysis systems to mitigate koala road fatalities and injuries