

Scientists investigate using artificial intelligence for next-generation traffic control

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(Phys.org)—Researchers at the University of Southampton are investigating the application of artificial intelligence (AI) technology for controlling traffic lights.

The development of artificial intelligence-based approaches to junction control is one of many new and promising technologies that can make better use of existing urban and road capacity, while reducing the environmental impacts of [road traffic](#).

The research carried out by the University of Southampton team has used computer games and simulations to investigate what makes good traffic control. This work has shown that – given the right conditions – humans are excellent at controlling the traffic and can perform significantly better than the existing urban traffic control computers in use today.

This was tested for the BBC's 'One Show' programme, where presenter Marty Jopson controlled a 'real traffic light junction at the InnovITS proving ground using a laptop, while 30 volunteer drivers tried to negotiate the junction.

Dr Simon Box of the University of Southampton Transportation Research Group adds: "The demonstration carried out at innovITS Advance indicates that the [human brain](#), carefully employed, can be an extremely effective traffic control computer. In our research we aim to be able to emulate this approach in a new kind of software that can provide significant benefits in improving the efficiency of [traffic flow](#), hence improving road space utilisation, reducing journey times and potentially, improving [fuel efficiency](#)."

The Southampton researchers have now developed 'machine learning' traffic control computers that can learn how to control the lights

like a human would and even learn their own improved strategies through experience.

"In transport research we are always looking ahead, and we can consider a future where all vehicles are equipped with WiFi and GPS and can transmit their positions to signalized junctions," explains Dr Box. "This opens the way to the use of [artificial intelligence](#) approaches to [traffic control](#) such as machine learning."

Provided by University of Southampton

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