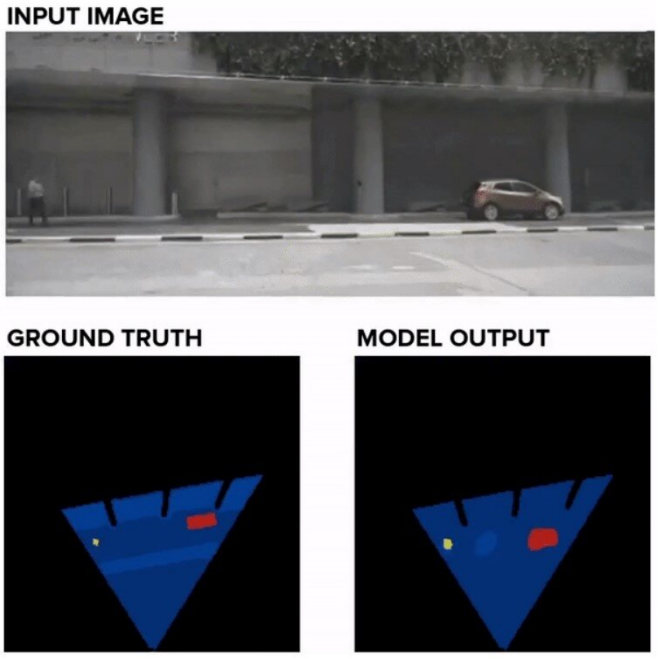
New AI creates bird's-eye view map faster, brings safer autonomous vehicles a step closer

9 June 2022



Credit: University of Surrey

Award-winning research from the University of Surrey that uses artificial intelligence (AI) to instantly and accurately translate two-dimensional images into a bird's-eye view map faster, brings the prospect of safer autonomous vehicles closer to reality.

Surrey's new AI model produces results that are 15% more accurate than other technologies on the market.

Avishkar Saha, co-author of the study at the University of Surrey, said, "Safety is one of the key hurdles preventing autonomous vehicles from becoming a reality. It is crucial for such vehicles to build maps of the world instantly and accurately, so they know where it is safe to drive.

"Our model exploits the one-to-one correspondence between a vertical line in an image and rays passing through the camera location in an overhead map. This allows our technology to treat an image in a similar way that artificial intelligence solves language translations."

The technology, developed by the Center for Vision Speech and Signal Processing(CVSSP) at University of Surrey, uses similar principles to language translation systems (natural language processing) to convert an individual column of pixels in a picture into one ray along a map.

The research paper, which won the prestigious Outstanding Paper Award at this year's IEEE International Conference on Robotics and Automation, is part of the University of Surrey's drive to improve SLAM (simultaneous localization and mapping) technology of autonomous vehicles.

Professor Richard Bowden, co-author of the study at the University of Surrey, said, "This is part of a larger piece of work into autonomous vehicles and perception and we are very pleased that our research has been recognized with this highly prestigious accolade. We have been extending Avi's approach into a full Simultaneous Localization and Mapping (SLAM) system that will allow vehicles to navigate safely without an expensive LIDAR. Achieving autonomy using only cameras is key to providing a low cost but safe solution."

More information: Translating Images into Maps. openresearch.surrey.ac.uk/espl … tputs/99644666602346

Provided by University of Surrey

APA citation: New AI creates bird's-eye view map faster, brings safer autonomous vehicles a step closer (2022, June 9) retrieved 1 October 2022 from https://techxplore.com/news/2022-06-ai-bird-eye-view-faster-safer.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.