Driving Under the Influence (of Language)

Algorithms enable self-driving vehicles to interpret and learn natural human speech commands for reliable, voice-controlled navigation in varied environments.

With recent advances in self-driving cars, it appears that our roads may soon be filled with autonomous vehicles as well as a variety of unique problems associated these vehicles. One such issue that arises is how a self-driving car receives commands/navigational instructions from the human occupants. Creating such a link between human and computer in a vehicle related setting is extremely challenging due to the countless environments that will be encountered as well as the numerous ways of describing each and every one of these environments in human speech.

Researchers at Purdue University have developed three algorithms that allow a self-driving car to listen, interpret, and actually learn human speech. These algorithms provide a link between everyday speech, while accounting for the extreme varieties in syntax and useful navigational instructions for a self-driving vehicle. This technology allows a person to naturally describe a location or route to the car, which then automatically interprets the speech into a physical destination and proceeds to follow the spoken instructions. Using this technology, self-driving cars have the potential to become much more than a car driven by a computer, but a natural voice-controlled extension of the driver.

Advantages:

-Actively learns language

-Can readily respond to new environments

-As reliable as human to human instructions

Potential Applications:

-Self-driving vehicles

-Machine learning

Technology ID

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Category

Artificial Intelligence & Machine Learning/Natural Language Processing & Generative AI
Automotive & Mobility Tech/Mobility AI & Embedded Intelligence Systems
Robotics & Automation/Autonomous Systems & Perception AI

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-Language comprehension

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Intellectual Property:

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