Collaborative Sciences Center for ROAD SAFETY

Collaborative Sciences Center for Road Safety – Coffee and Conversation Speaker Series

PROCEEDINGS from "Mobility for All: The Allure of Automation"

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Dr. Allie Thomas weaved her research in China and North Carolina mobility to discuss the equity implications of autonomous vehicles (AVs). She acknowledged that there were many issues of inequity in transportation already. From the Montgomery, Alabama, bus boycotts in the 1960s to police violence involving African-American motorists, "transportation remains a civil rights issue." [1]

When it comes to transportation, "we have to think about who it was for and how it was used," said Thomas.

Some of the trending issues in equity include:

- Spatial mismatch:
- **Weak Public Transportation:** Will AVs be used to strengthen public transportation, or will single-occupancy AVs serve to weaken an already sensitive system.
- **Mobility Challenged:** How are those who are differently abled going to be able to use AVs?
- **Police Violence:** Will AVs hurt or help this issue in the United States?

Thomas cites Bullard [1] in examining the process of incorporating AV technology in society. Thomas offers these elements as a framework by which to measure equity:

- **Procedural Inequity:** Do the rules apply equally to everyone?
- **Geographic Inequity:** some communities are physically located on the "wrong side of the tracks" and often receive substandard transportation services.
- **Social Inequity:** Transportation benefits and burdens are not randomly distributed across population groups.

We can look at these through inputs and outputs, said Thomas. She began with the example of the fictional city of Wakanda from the film Black Panther, based on the Marvel Comics superhero. The scenes of the city are a new urbanist's dream, according to Architectural Digest. Thomas pointed to the density, the cultural identity evident in the planning of the city.

"This is a very different idea of the future," said Thomas. "We often get our ideas about the future from science fiction. When we are shown the concept for AVs, we don't see black people in autonomous vehicles. We don't see the disabled. We don't see children. What is the vision we have for the future and who is included?"

Another input is that current technology is such that AVs cannot see a black person at night. Thomas asked, "What is the input that is in the vehicle?" [3]

Thomas demonstrated the evidence that AVs should be considered a tool and not a solution. In fact, a recent expert in new urbanism, Peter Calthorpe argues that the convenience of AVs will encourage more trips, exacerbating congestion. [4]

Urban Planning Guru Says Driverless Cars Won't Fix Congestion.

Another input: "when I Google 'race' and 'autonomous vehicles' the search turns up articles about the race to develop AVs, not issues of equity and technology," explained Thomas.

However, a recent Citylab article looked at some of the ways AV technology could provide safe transport for African Americans. [5]

- Could there be cameras in the car to have documentation?
- Could the cars be bullet-proof?
- If African Americans are not driving will they be stopped?

What about rural populations? This is the spatial mismatch. So much discussion has been focused on improving road technology. Thomas asked: How much of this is happening off interstates and on rural roads?

Globally, the road is used differently depending on where one is. Thomas shared her experiences living and working in China where "there are so many vehicle modes, so many people. Lane markings are guidelines. Streets are very wide." For this reason, it is interesting to examine issues of equity in road usage in places like China, according to Thomas.

And finally, in order to more effectively study these issues, data sharing on the part of the AV developers is crucial, said Thomas. This has to do with legislation. Are these companies technology companies or transportation companies? There are different rules depending on the answer to this.

"Too often [AV companies and investors] are coming, using our infrastructure but they won't share the data," said Thomas.

References

[1] Robert D. Bullard, Addressing Urban Transportation Equity in the United States, 31 Fordham Urban Law Journal, 1183 (2003). Available at: https://ir.lawnet.fordham.edu/ulj/vol31/iss5/2

[2] Marc Malkin, The Real-Life Possibilities of Black Panther's Wakanda, According to Urbanists and City Planners, Architectural Digest, February 28, 2018. https://www.architecturaldigest.com/story/the-real-life-possibilities-of-black-panthers-wakanda-according-to-urbanists-and-city-planners

[3] Sam Huang, The Racist(?) Autonomous Driving Car and the Dangers of Bias in Artificial Intelligence, Medium.com, Oct. 16, 2018. Blog, https://medium.com/predict/the-racist-autonomous-driving-car-and-the-dangers-of-bias-in-artificial-intelligence-9bfca178e658

[4] John Markoff, Urban Planning Guru Says Driverless Cars Won't Fix Congestion, New York Times, October 27, 2018. https://www.nytimes.com/2018/10/27/technology/driverless-cars-congestion.html

[4] Brenton Mock, Can Self-Driving Cars Protect Black People from Police Violence, Citylab.com, September 21, 2016. https://www.citylab.com/life/2016/09/will-self-driving-cars-protect-black-people-from-police-violence/500933/