HUMANITY CENTERED ROBOTICS INITIATIVE

BROWN

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DeepScale

"How Autonomous Driving Challenges Computer Vision"

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CIT 477 Lubrano

Abstract: Computer vision research has made many strides in recent years, but there a number of significant gaps between what today's computer vision research offers, and what will be required for large-scale deployments of autonomous vehicles. Just a few of these challenges and considerations are:

1. Do we have the right methodologies and metrics for measuring the accuracy and robustness of computer vision in the context of autonomous driving?
2. What can we do to reduce the computational requirements of computer vision so that we don't need to burn kilowatts of power to concurrently run deep neural network inference on many cameras and sensors?
3. How can we extract additional information from simulation, video, depth sensing, and high-resolution imagery?

In this talk, we present 11 areas where autonomous driving challenges computer vision research, and in some cases, we propose solutions.

Forrest Iandola completed a PhD in EECS at UC Berkeley, where his research focused on deep neural networks. His best-known work includes deep learning infrastructure such as FireCaffe and deep models such as SqueezeNet and SqueezeDet. His advances in deep learning led to the founding of DeepScale, where he has been CEO since 2015. DeepScale builds vision/perception systems for automated vehicles.

Host: Stefanie Tellex/HCRI