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Toward Reliable, Scalable, and Efficient Edge-enabled Applications for Connected Vehicles

Sidi Lu

School of Computing Candidate

Wednesday January 11, 2022
1:40 – 2:40 PM
Boyd GSRC, Room 306
Refreshments will be served in Boyd, room 409 at 10:00 AM

Abstract:

As a mobile sensing, computing, communication, and energy storage and delivery platform, connected vehicle is transforming from the vehicle-centric, closed, fixed-function vehicle to the AI-centric, connected, and software-defined vehicle that enables vehicle-to-everything and vehicle-to-grid. However, this evolution brings a series of technical challenges across diverse areas (e.g., inference and learning in mobile systems, cybersecurity and privacy, human-computer interaction, and human-centered computing), calling for cross-disciplinary solutions.

In this talk, I will introduce a series of research works toward reliable, scalable, and efficient edge-enabled connected vehicle applications. First, I will focus on a vehicle-edge-cloud closed-loop framework with the key advantages of bandwidth reduction and inference acceleration. Then, a collaborative learning framework based on a group of heterogeneous computing platforms will be presented, which enables collaborative training (i.e., electric vehicle battery failure prediction) and collaborative inference (i.e., multi-camera multi-target tracking). Next, to ensure the vehicular data can be stored reliability in the cloud data centers, one of the largest disk failure prediction studies will be introduced. Finally, I will conclude this talk by discussing several promising collaboration directions at UGA.

Biography:

Sidi Lu is a Ph.D. candidate at Wayne State University (WSU) under the guidance of Prof. Weisong Shi. Her research interests span edge computing and applied AI for connected mobility systems, with the objective of making networked and distributed systems (such as connected vehicles and IoT devices) more reliable, scalable, secure, and efficient. Her research topics include vehicle computing (e.g., electric vehicles, autonomous driving) and edge intelligence (e.g., connected health, smart manufacturing). She has received all the prestigious awards given to Ph.D. students at WSU.