



Secure Interactions with Internet of Things -- Adaptive Data Verification in Vehicular Communications

Kang Shin @ University of Michigan

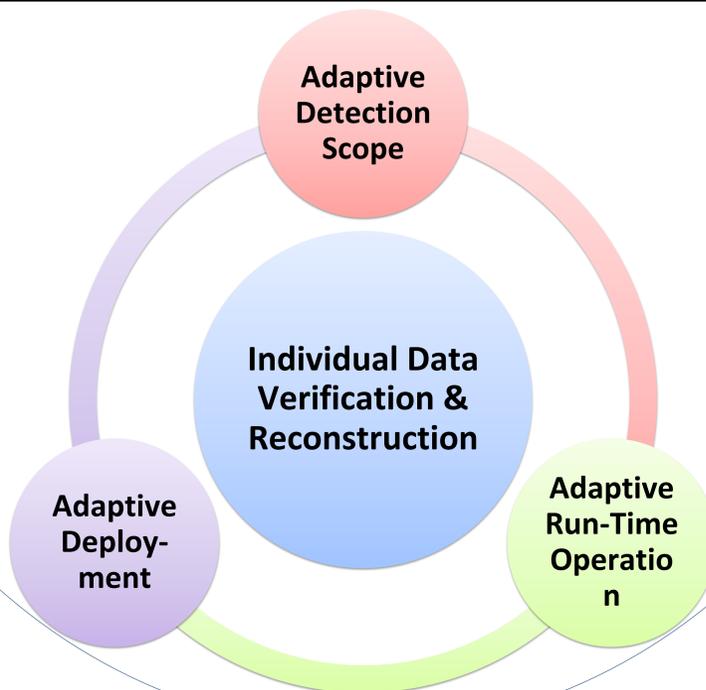
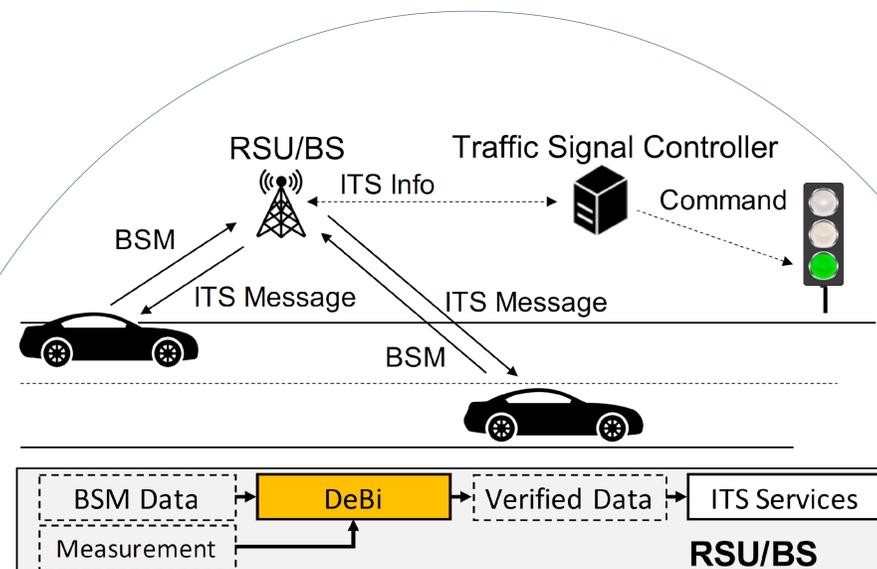
Challenge:

How to design a practical system for V2I/V2X message verification with adaptive features since compromised information in ITS can degrade the mobility and safety of transportation.

Solution:

DeBi: an adaptive system that verifies the vehicle status info in V2I/V2X message with 3 adaptive features:

- New run-time data verification and reconstruction mechanism for individual vehicle data.
- New concept of *verification group*, *verification tree*, and *detection ability index*.



Scientific Impact:

- A thorough understanding of important properties in designing infrastructure-assisted systems.
- A concrete design to enable adaptive features for future verification systems.

Broader Impact:

- **Economical:** Reducing design cost for ITS deployment.
- **Social:** Ensuring safe & smooth transportation.
- **Environmental:** Ensuring the operation correctness of ITSs and thus reducing fossil-fuel consumption.
- Presented at academic institutions and conferences; integrated at graduate level courses; graduated 1 PhD and 1 MS