

Interstate-24 MOTION: Enabling Smart Mobility with High-fidelity Trajectory Extractions

IEEE IV Co-Drive Workshop

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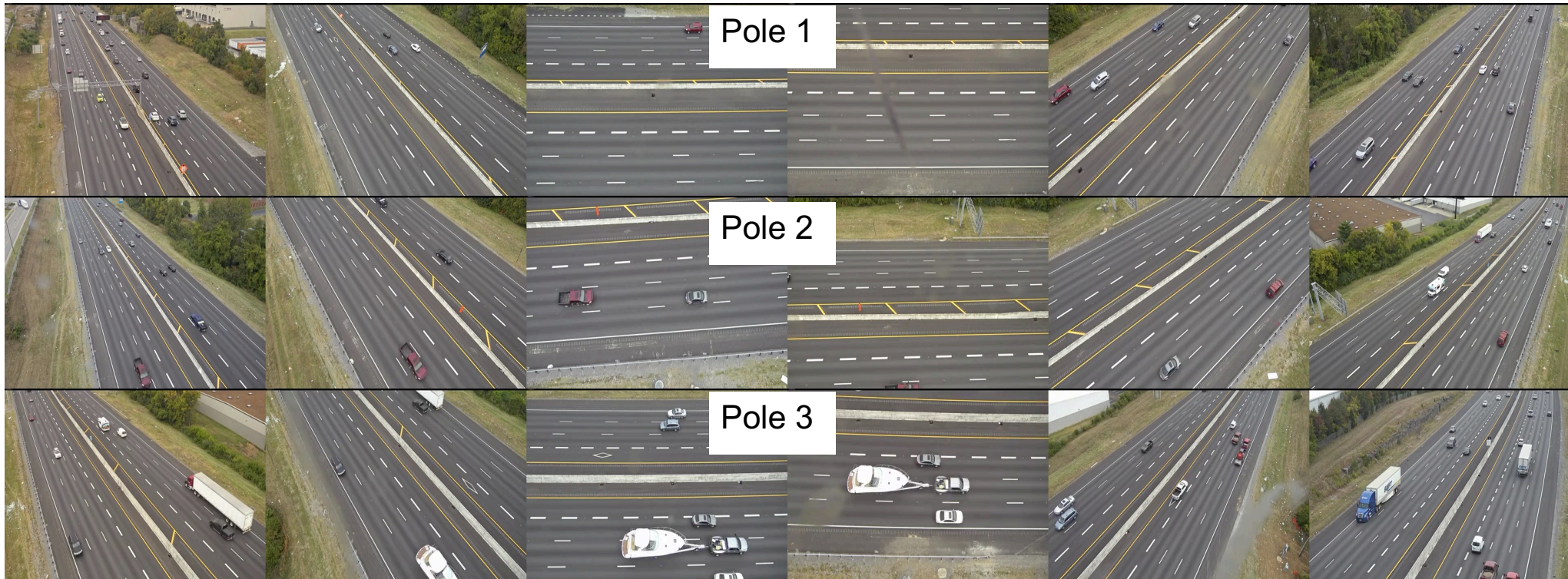
I-24 MOTION: An Open Road Testbed for

- Active traffic management technologies
- Reliability, safety, and mobility initiatives
- Connected and automated vehicle technologies

Innovation: Dense installation of 4K resolution video cameras and modern computer vision algorithms on I-24.



The Scale



- **2006 NGSIM (California)**

- 1,800 vehicle miles traveled (I-80 dataset)

- **2018 High-D (Germany)**

- 25,000 vehicle miles traveled

- **2022 I-24 validation system**

- 16,000,000 vehicle miles traveled/year

Current Work: 3D Detection & Tracking

- Modern computer vision algorithm
- Obtain 3D bounding boxes using roadway geometry
- Validated using GPS and CAN bus data



Led by Derek Gloudemans

Current Work: Data Rectification

- Rectify trajectory data using vehicle dynamics
 - Positions, velocity, acceleration
 - Steering angles, lane info
 - Vehicle type, vehicle dimensions
 - Energy consumption
 - ...





Learn More at the Industry Forum (July 15)

- The I-24 MOTION Industry Forum will engage industry in discussions with TDOT and project partners to explore potential uses of the test bed
- Register on Eventbrite

yanbingwang.com/industry-forum/