



SHINTARO ONO LAB

(Proj. Assoc. Prof.)



[Sensing and Visualization for ITS]

Vehicle Dynamic Control Strategy of Automated Driving*
Advanced Mobility Research Center (ITS Center)

Mechano-Informatic Mobility Engineering

*Corporate Sponsored Research Program

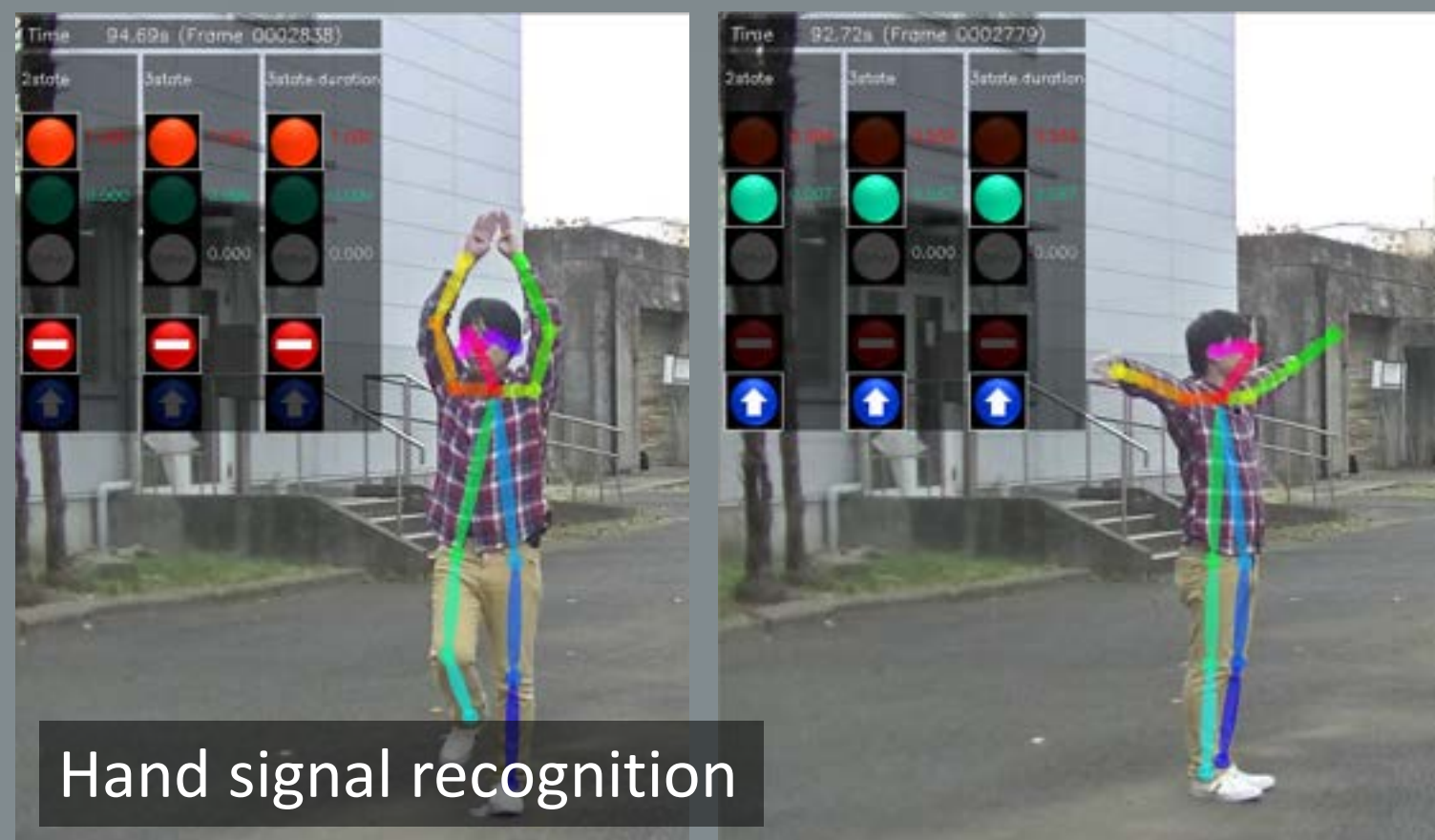
<http://www.its.iis.u-tokyo.ac.jp/onoshin/>

Visualization
Practical Use

Real Scene Understanding
Information Extraction

Real World Sensing
Modeling

Basic Technology for Automated Driving -- Toward wider ODD --

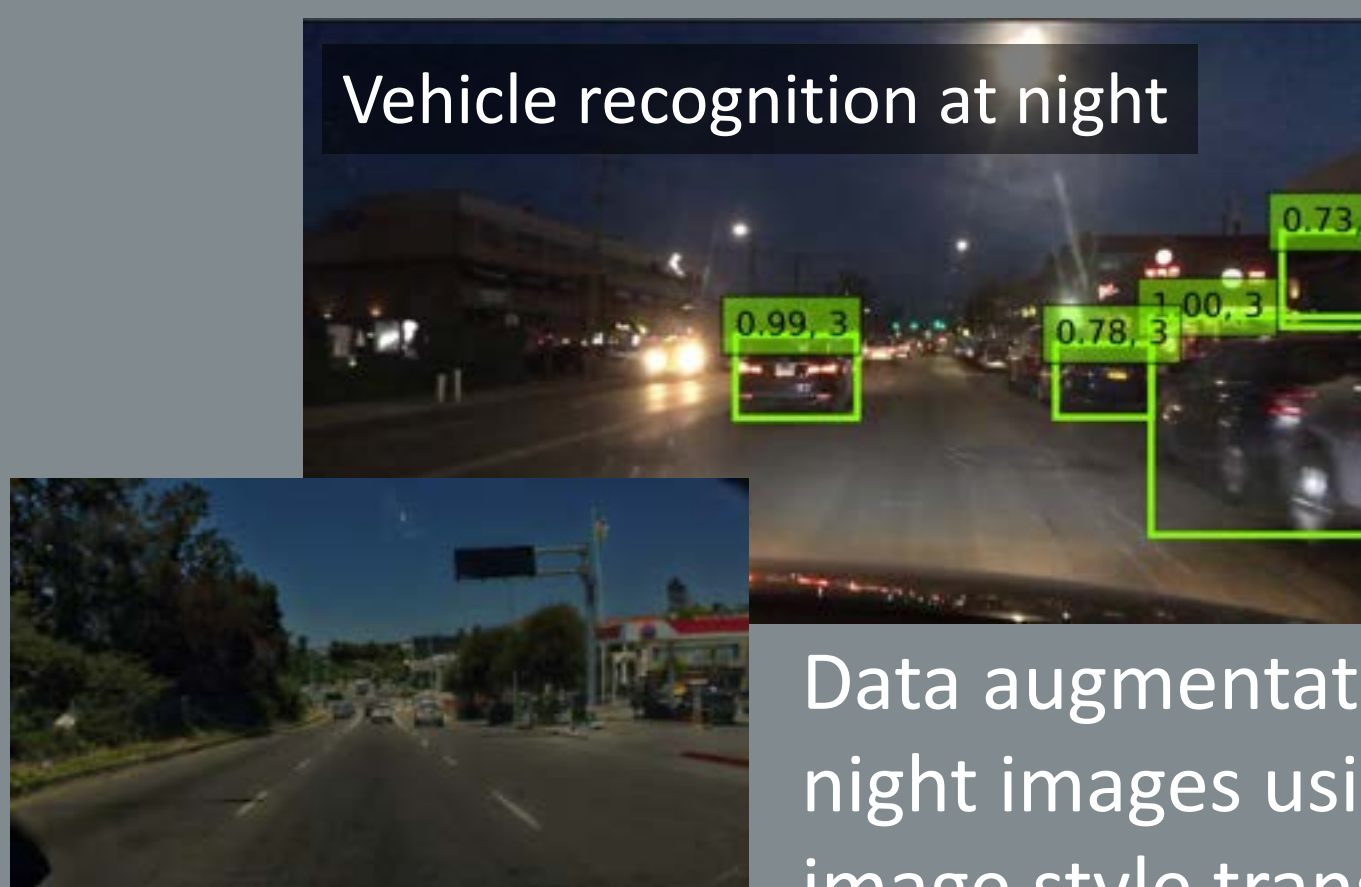


Hand signal recognition



Detecting road safety mirror

Event detection inside mirror



Vehicle recognition at night

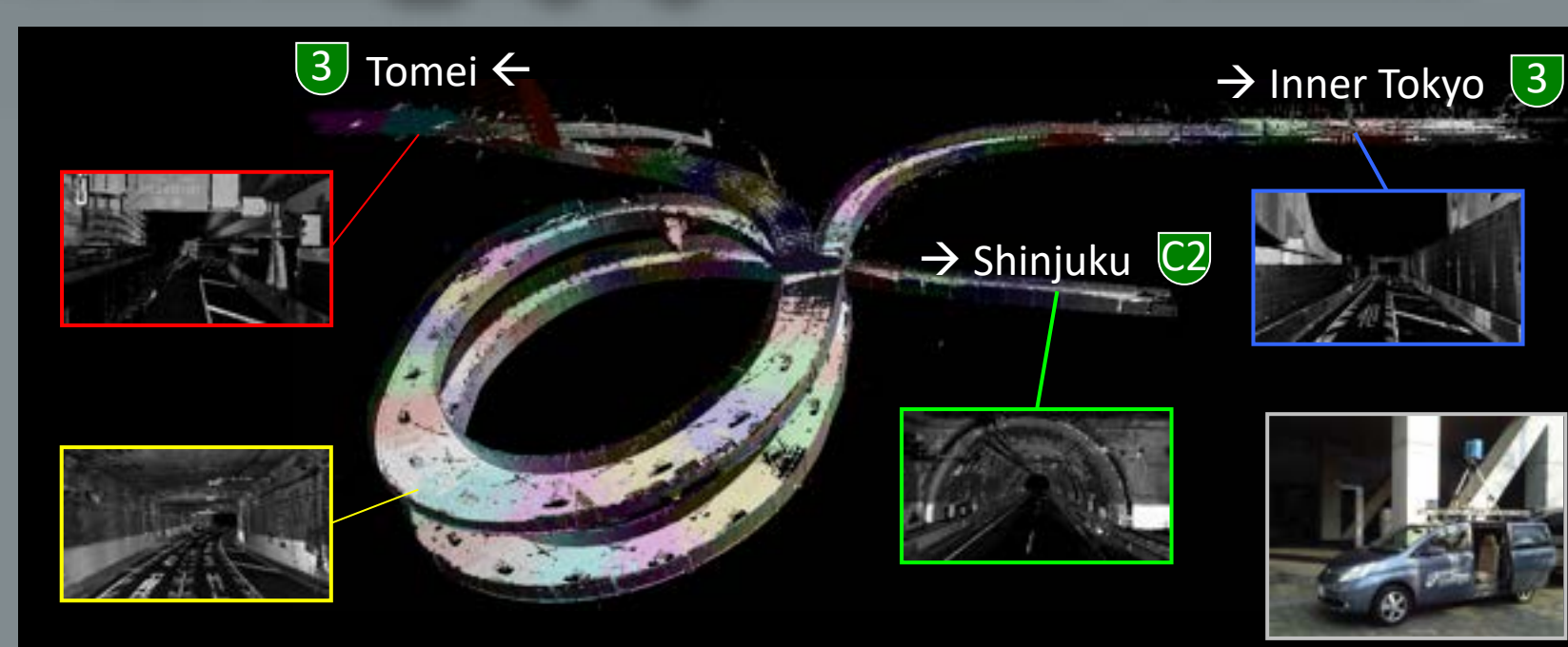
Data augmentation for night images using image style transfer

Detecting Unusual Events



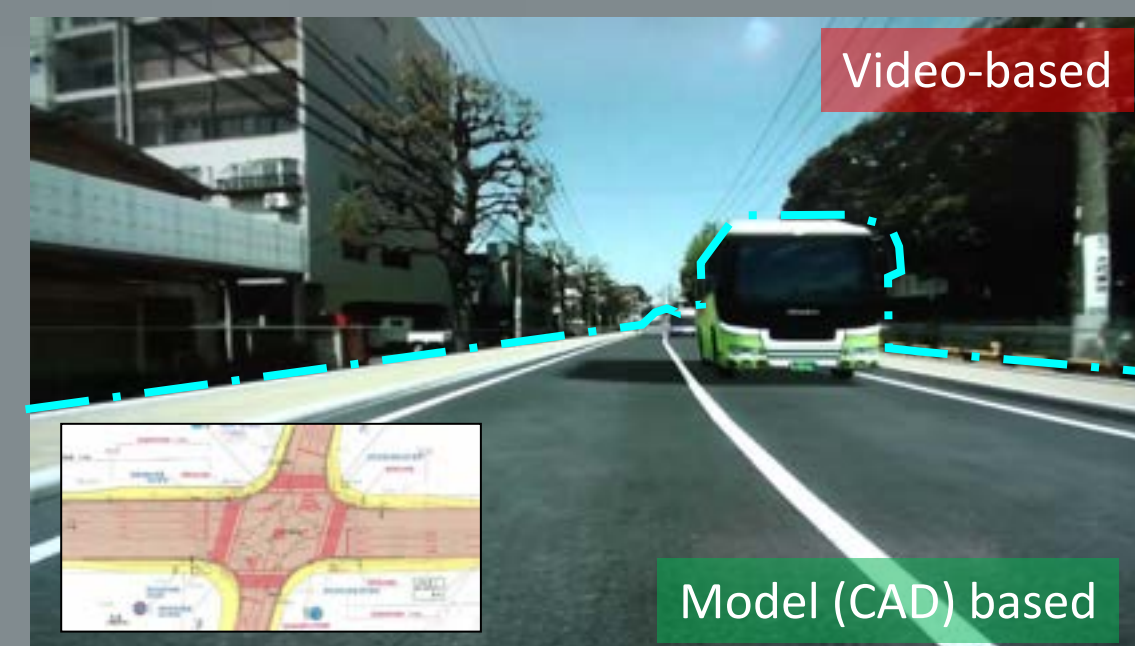
Flood detection for driving video
Data augmentation using CG and GAN

Sensing by Specialized Vehicle



3D Modeling of Road Structure

Video-based Driving Simulator



Video-based

Model (CAD) based



Enhancing reality using real video for background

System for Information Collection, Integration, Visualization, and Distribution



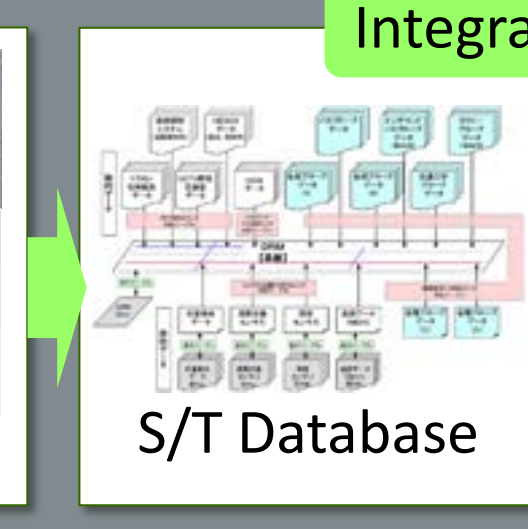
Distribution

General Citizen
More awareness
Behavioral change
• Use public trans.
• Choose eco-route
• Do eco-driving

Collection



Integration



Visualization



Reducing CO₂ Emission by Raising Awareness of Citizens.
Social experiment in Kashiwa City proved the possibility of 8% reduction by the Regional Transport Information System for promoting eco-friendly travel behavior.

Space-time Video Processing

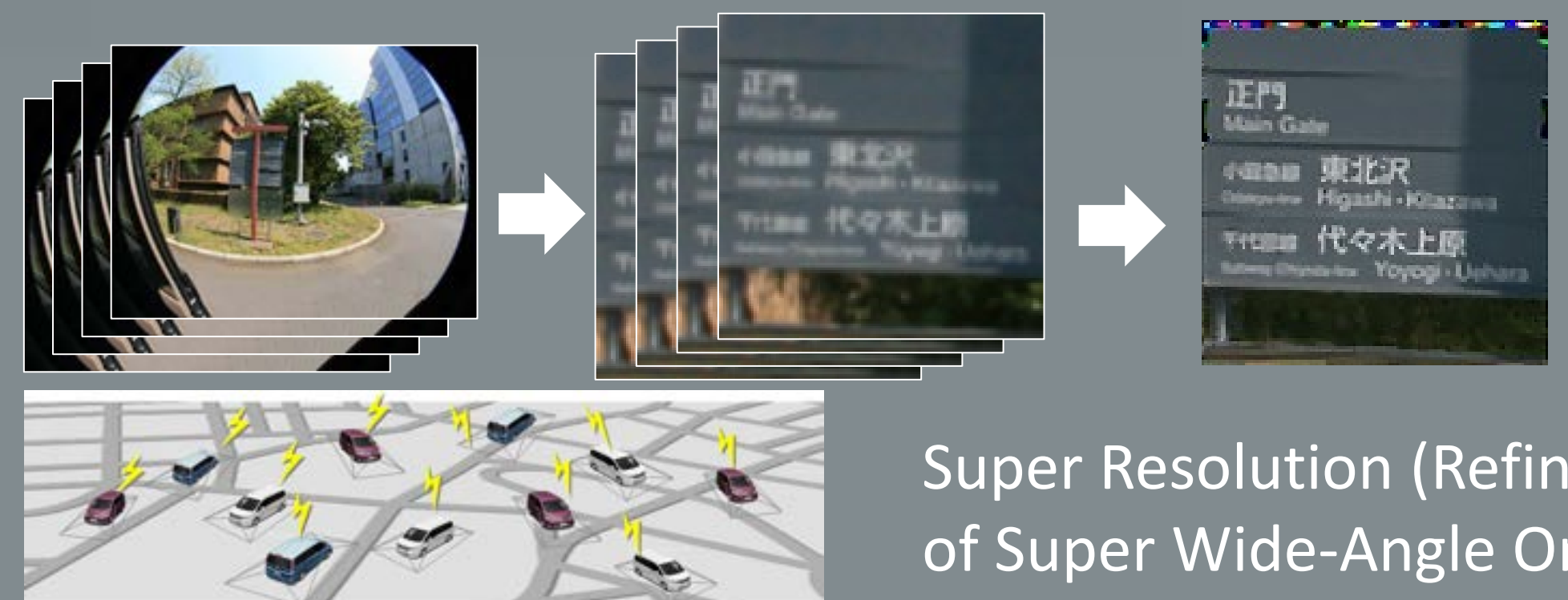


Before

After

Separating foreground/background by spacetime filtering

Sensing by General Vehicles



Super Resolution (Refinement) of Super Wide-Angle On-Vehicle Camera

▼ Street Panorama before East Japan Earthquake Reconstructed from Driving Video Recorder

