

# MIZUTANI LAB.



## Transparentizing Infrastructure on a National Scale in Four Dimensions

Department of Human and Social Systems

Real-Time Spatial Analysis

Department of Civil Engineering, Graduate School of Engineering

<https://mizutanilab.iis.u-tokyo.ac.jp/>

Now that aging infrastructure is a global problem, including Japan, innovation in maintenance and management technology is essential. Mizutani Lab. uses such state-of-the-art devices as Radar and LiDAR for high-speed observation and fully automated processing to see through the three-dimensional shape of structure surfaces, internal structures and damages. Also, our new keyword is **"Four-Dimensional Transparentization"** focusing on time-varying information of infrastructures.

Large-scale point cloud data analysis for 2D diagnosis of infrastructure surfaces

Point cloud data of construction sites using smartphones

High speed LiDAR

### Visible Space

### Invisible Space

3D subsurface visualization of internal damage of bridges

Bridge deck      Segregation      Rebar

- Surfaces
- # Rebar mesh
- \* Damage

### Quantitative evaluation of internal cracks in structures using handy radar

actual thickness = 120 mm, estimated thickness = 130 mm

クラック厚さ推定

