

IOWN INTEGRAL

NTT R&D FORUM 2024

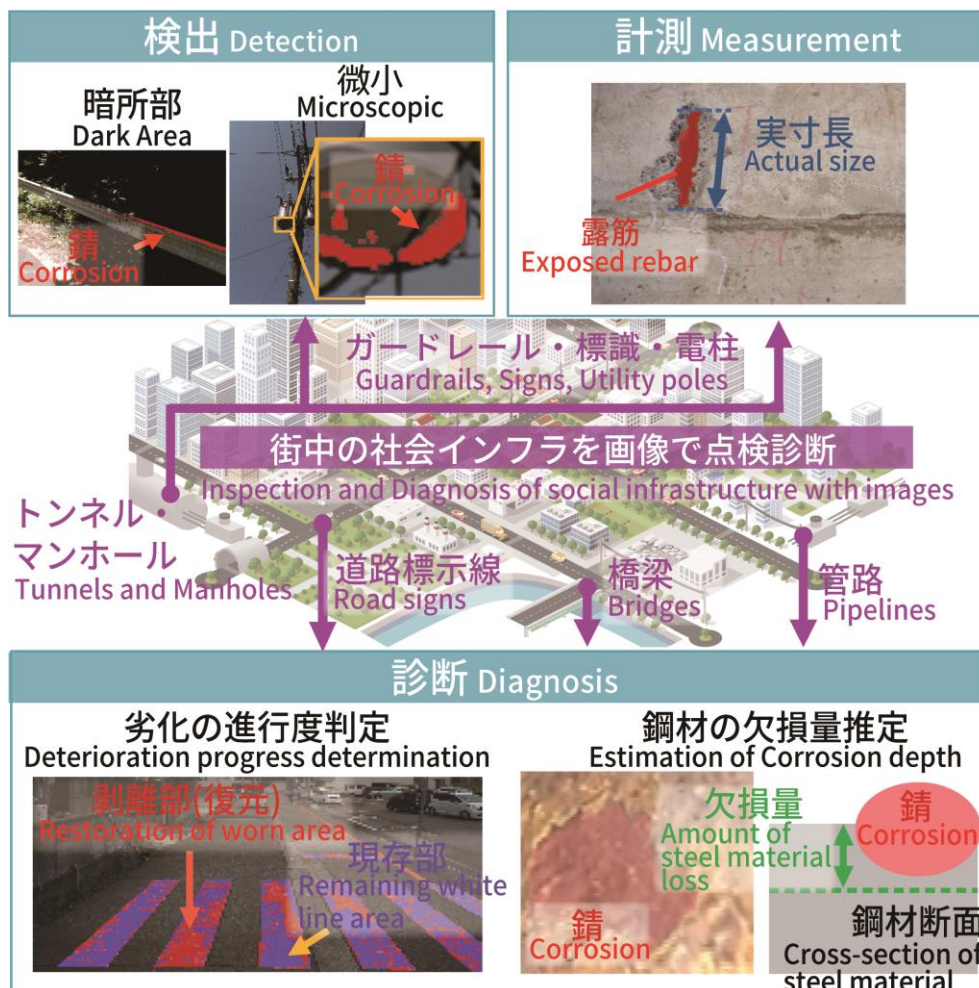
RESEARCH

γ10-15

Inspection and diagnosis of social infrastructure using image recognition AI

Facility managers can achieve efficient and skill-less facility maintenance with image recognition AI

#Productivity Improvement #Regional Revitalization



///Technical Issue

Inspecting facilities and their deterioration is crucial, but images alone can't detect minor external damage or provide internal diagnostics for thorough inspections.

///Research Goal

By consolidating facility managers' on-site work into image capture and AI batch inspection, maintenance costs of 30 billion yen will decrease by 78%.

---Technology

- [Detection] Ensemble model detects deterioration despite image or lighting.
- [Measurement] AI measures deterioration length via concrete analysis.
- [Diagnosis] (1) Image AI reconstructs delamination, (2) Machine learning estimates steel thickness.

---Novelty

- [Detection] Rust detection accuracy 90.4%. (marketed tech: 75.1%)
- [Measurement] Max error 17.1%. (marketed tech: 52.7%)
- [Diagnosis] (1) 99% of white lines diagnosed (marketed tech: 64%), (2) Corrosion depth estimated as accurately as ultrasonic inspection.

---Applicable Business

Can be used for high-quality, efficient facility inspections of roads, tunnels, bridges, etc. in the field of social infrastructure maintenance and management (service provision scheduled to begin sequentially from 2024).