



Episode 3 "AI and big data for decision-making"

May 9th, 2025, 11:00 - 12:30 (CEST)

RECLAIM

AI-powered Portable Robotic Material Recovery in a Box

Cluster: HORIZON-CL4-2021-DIGITAL-EMERGING-01-09: AI, data and Robotics for the Green Deal (IA)

Michail Maniadakis

FORTH – Foundation for Research and Technology Hellas

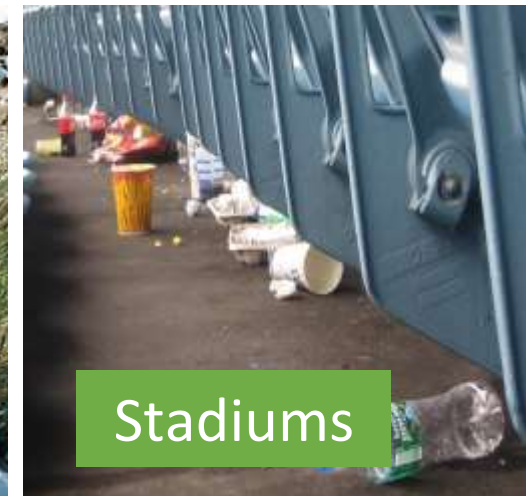
The RECLAIM Consortium - 10 partners across 5 countries



Problem Statement

- **Urban-Centric MRFs**
- **Centralized waste management, inefficient for:**
 - Remote areas
 - Sites with high waste volume
- **Reasons:**
 - Costly Transport
 - Waste compression
 - Less recovery

Demand: Portable MRF



RECLAIM solution



prMRF: A low-cost, portable & robotic Material Recovery Facility

Waste Sorting:

- Local-scale
- Industrial efficiency
- Cost-effective (No cost for transporting to central MRFs)



RECLAIM solution



prMRF: A low-cost, portable
& robotic Material Recovery
Facility

Waste Sorting:

- Local-scale
- Industrial efficiency
- Cost-effective (No cost for transporting to central MRFs)

RECLAIM technologies

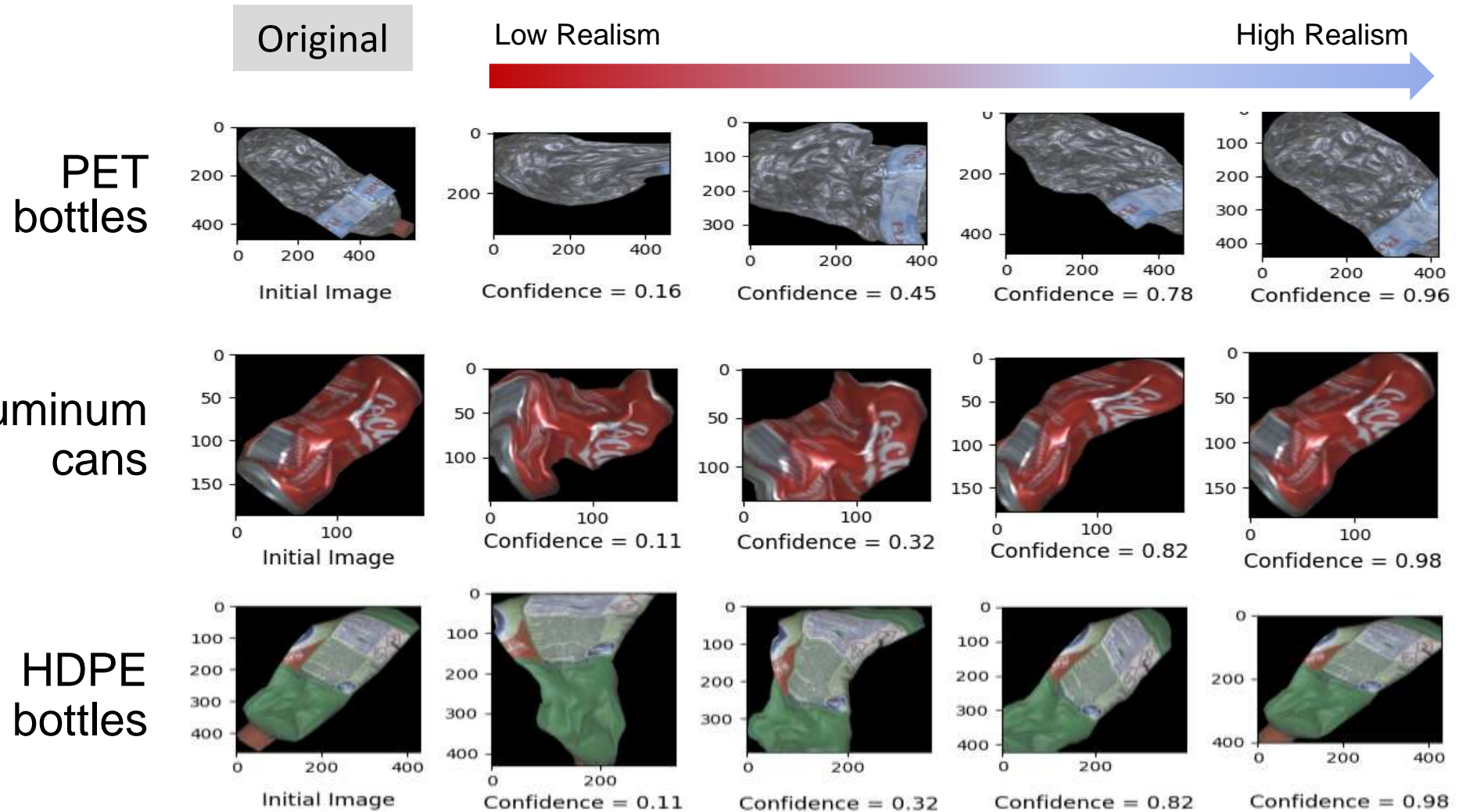
1.5 DoF
Waste Picker

- New cost-effective robots
 - Tailored to waste sorting



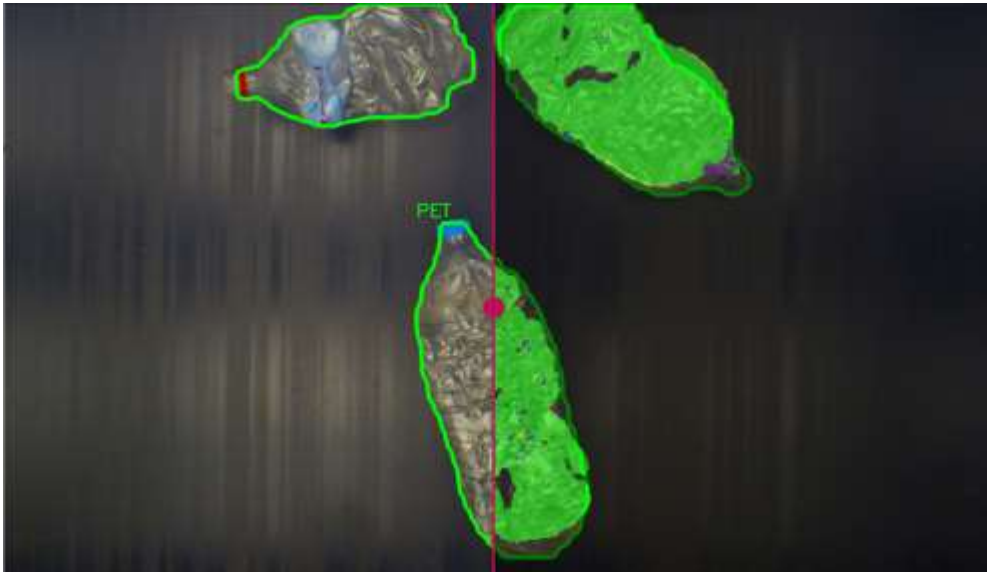
2.5 DoF
Waste Picker

RECLAIM technologies



RECLAIM technologies

- Dual-Spectrum Waste Categorization
 - Visible and Infrared Analysis



- Single-modality accuracy 93-95%
- Multi-modality accuracy 98.5%

RECLAIM solution

Easy transport & deployment

- Ready to operate in <1 hour



Performance

Material recovery

- ~120 picks/minute
- >7000 picks/hour
- >50.000 picks/shift

RECLAIM solution

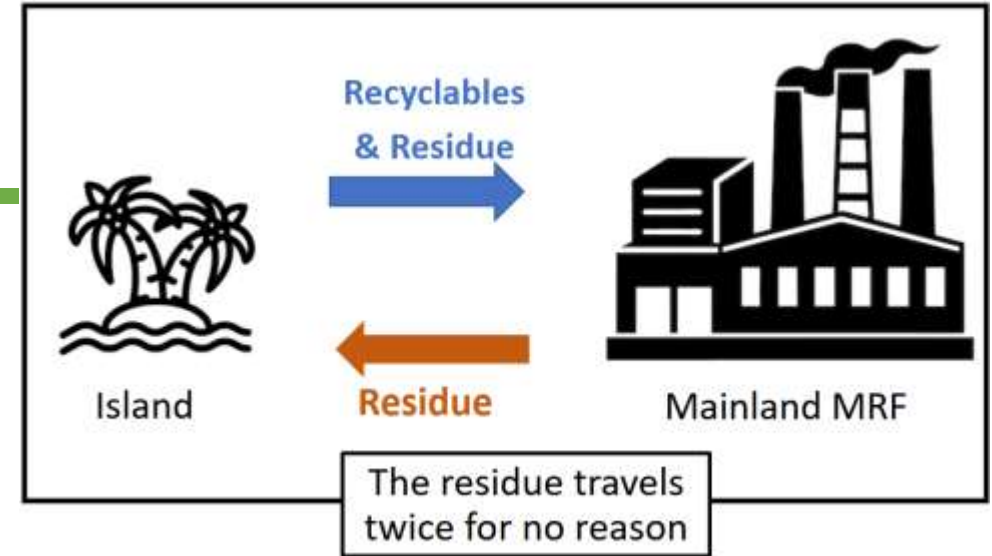
prMRF: a real world solution

- Ready to operate in Kefalonia Island

New Circular Economy model

Decentralized waste processing

- Industrial-level efficiency
- Less waste transportation
- Improved material recovery
- New business activity
- Job creation



Pacific Islands: waste air transport



<https://sdg.iisd.org/commentary/policy-briefs/shipping-partnership-advances-waste-management-in-pacific-islands/>

Thank You!

