

Team Copy Waste

Scrum 5

Feb. 1, 2022 - Feb. 8, 2022



THE TEAM



Nolan Flegel
Machine Learning



Rishabh Prasad
Front-End Services



William Peers
Back-End Services

PROJECT VISION

REDUCE RISK FOR
WASTE MANAGEMENT
WORKERS & COST FOR
MUNICIPALITIES



PROJECT MISSION

TO *AUTOMATE* THE
DETECTION OF
SEVERE & RARE
CONTAMINANTS IN
RECYCLING



Business Needs

- Reduce Risk of Fires and Associated Health Concerns
- Reduce Cost
- Address Careless Recycling & Hazardous Contamination

STATUS
GREEN

Project Issues

- No Issues at this time



Project Changes

- Mitacs Proposal
Approved



Addressing Comments

Dr. Gelowitz:
“Have you sorted out the IP?”



Individual Contributions



- Pair Programming
- Convert Binary Array to Polygon

Individual Contributions



- Refactoring Copy-Paste code
- Simplifying and Randomizing Object Transformations

Individual Contributions



- Running copy-paste on the audited dataset
- Exporting pasted images from the Copy Paste algorithm with combined annotations files

Bin Tip Overview

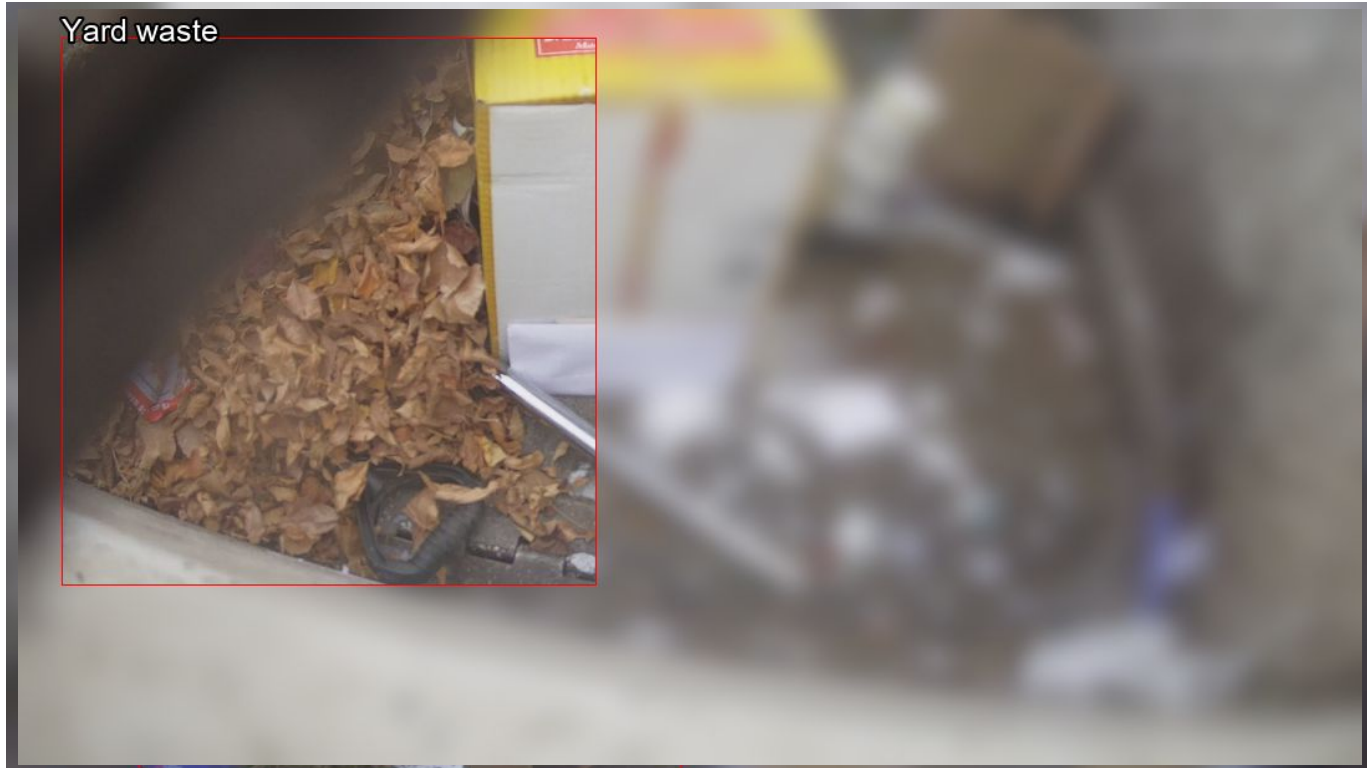
- Bin Detector Deployed
- Bin detector inferences on the edge computer were **300ms**



Simple Copy-Paste

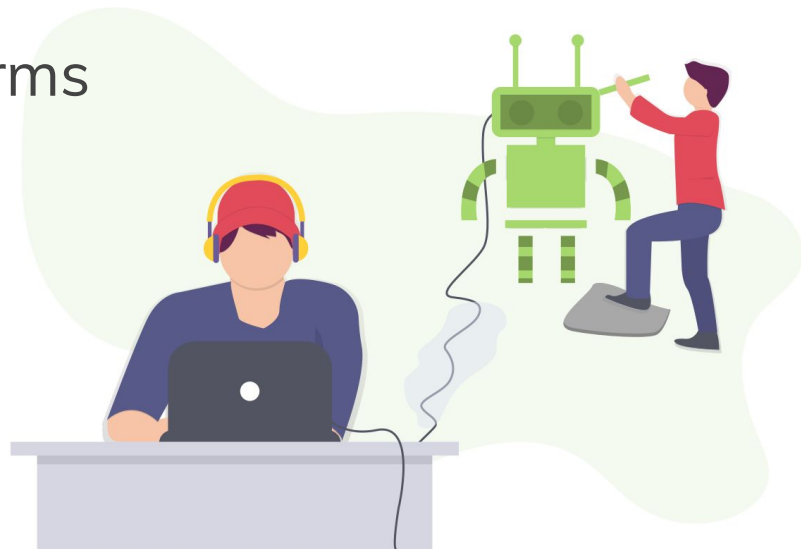


Simple Copy-Paste



Next Up

- MVP 4: Layering Transforms
- Monitoring Bin Detector
- MVP 5: Scale up data augmentation prototype
- Auditing Image Dataset



Reflection

- Does the team feel "on track"?
 - We believe we are still on track
- What progress does the team particularly feel good (great) about?
 - Mitacs Proposal Approved
 - Found Success with our augmentation prototype

Reflection

- What barriers (if any) does the team feel are a current impediment to success?
 - Auditing 30,000 images each.
- What help (if any) does the team require to move positively forward?
 - Regular meetings with our Industry Partner for guidance and code reviews.

Reflection

→ What questions or concerns does the team have (if any)?

No concerns at this time

References

- <https://leaderpost.com/news/local-news/smouldering-load-and-spray-cans-led-to-fire-at-crown-shred-says-regina-fire-department>
- <https://www.cbc.ca/news/canada/saskatchewan/crews-fighting-fire-at-crown-shred-and-recycling-1.5980051>
- https://www.epa.gov/system/files/documents/2021-08/lithium-ion-battery-report-update-7.01_508.pdf
- <https://www.waste360.com/business/li-ion-battery-fires-unfairly-cost-waste-recycling-and-scrap-operators-over-12-billion>

References

- <https://www.linkedin.com/pulse/2019-report-annual-reported-waste-recycling-facility-fires-fogelman/>
- <https://publications.gc.ca/site/eng/9.871296/publication.html>
- <https://arxiv.org/abs/2012.07177>
- <https://arxiv.org/pdf/1506.02640.pdf>

Thanks for Watching!