GLAZING EVOLVED.

BEC CONFERENCE™

March 3-5, 2024
Nashville
glass.org

NATIONAL GLASS ASSOCIATION with GANA

Conley Oster

Co-Founder
Raise Robotics

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Recent Tech Advancements in Robotics

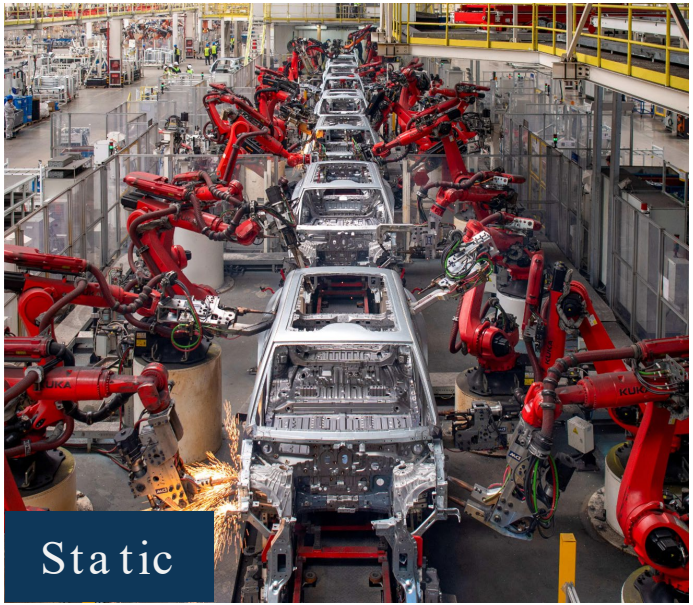
Advancement Implications

What makes a good application?

Use-Case Development Roadmap

Applications of Advanced Robotics in Glazing

Traditional Robotics Don’t Work On -Site

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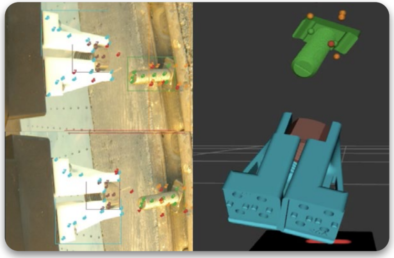
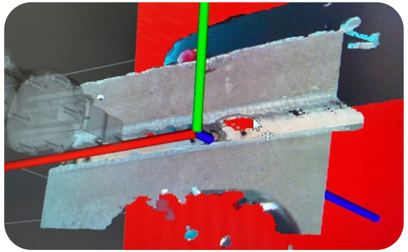
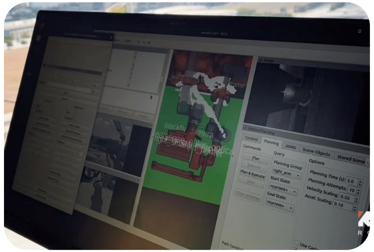






Perception → [illegible] → Planning → Action

Perception

The tools for gathering data about the surrounding environment

See - Computer Vision
Feel - Tactile Sensors

[illegible]

[illegible]

Planning

Plan motion decisions based on the processed data.

Quantify uncertainty and make probabilistic assumptions.

Action

Execute planned commands while simultaneously streaming live sensory data.

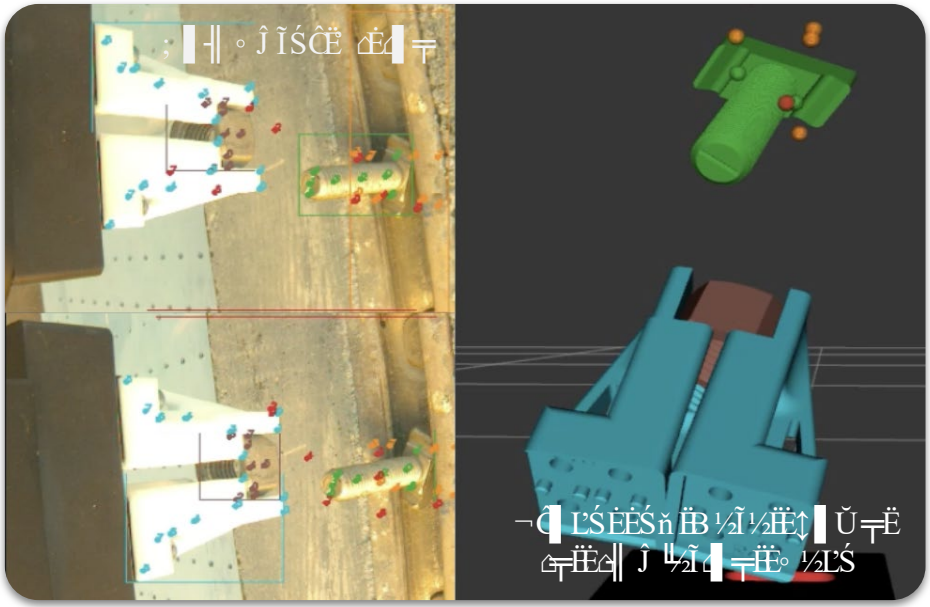
Today’s robots never stop improving

Machine Learning

Can ‘train’ machine simulation on real or synthetic (AI generated) vision & sensor data.

Improves speed, accuracy, and robustness of the machine algorithms.

Allows more accurate job estimations.



What makes a ‘good’ application?

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Engaging with a startup on a new use -case

- Choose a target scope of work and **provide the business case**
- Shadow workers and conduct interviews
- Segment SOW into smaller tasks
- First, develop robotic application for *'easiest'* task in the scope
- Establish success metrics for PoC test
  DOES IT COMPLETE THE DESIRED TASK?
  Remove performance metrics from initial success metrics.
  If it can complete the task, it will be able to complete the task more efficiently.
- Continue development on more complex tasks until entire SOW is completed
- Establish KPIs for commercial use - *Cycle times, mitigated hazards, speed of setup, etc.*
- Handoff to customer once established KPI's have been met

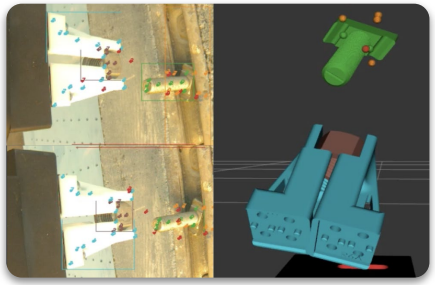
Applications of “Smart” Robotics in Glazing

Technology We’re Using:

- Computer Vision
- Haptic Feedback
- Machine Learning
- Tool Changers

Established Capabilities:

- High-Accuracy Placement
- Material Handling
- Torque driving + drilling
- Layout Marking
- Quantifying deviation from plan



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