

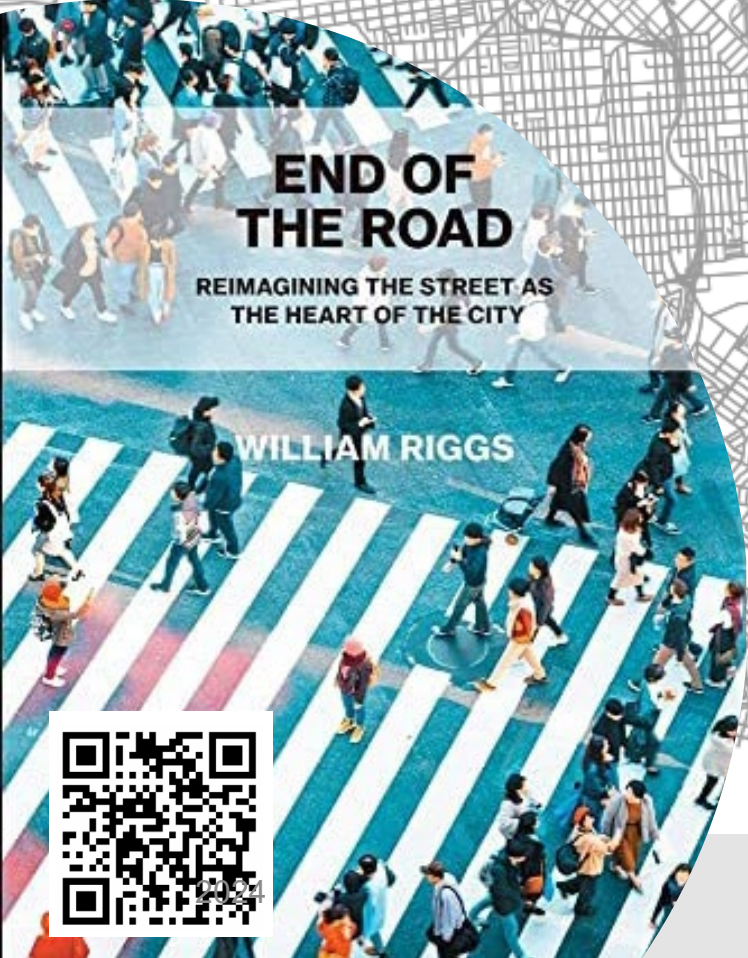
# Lessons in Remote Supervision & AV Operations

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# DISRUPTIVE TRANSPORT

DRIVERLESS CARS, TRANSPORT INNOVATION AND  
THE SUSTAINABLE CITY OF TOMORROW



## END OF THE ROAD

REIMAGINING THE STREET AS  
THE HEART OF THE CITY

WILLIAM RIGGS



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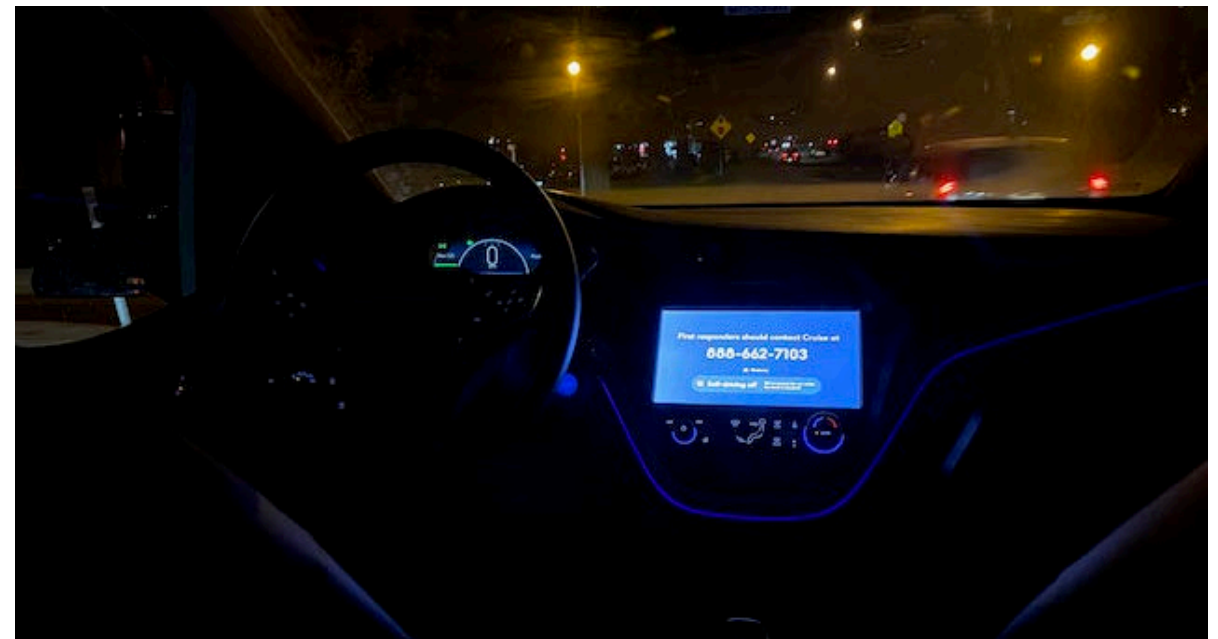
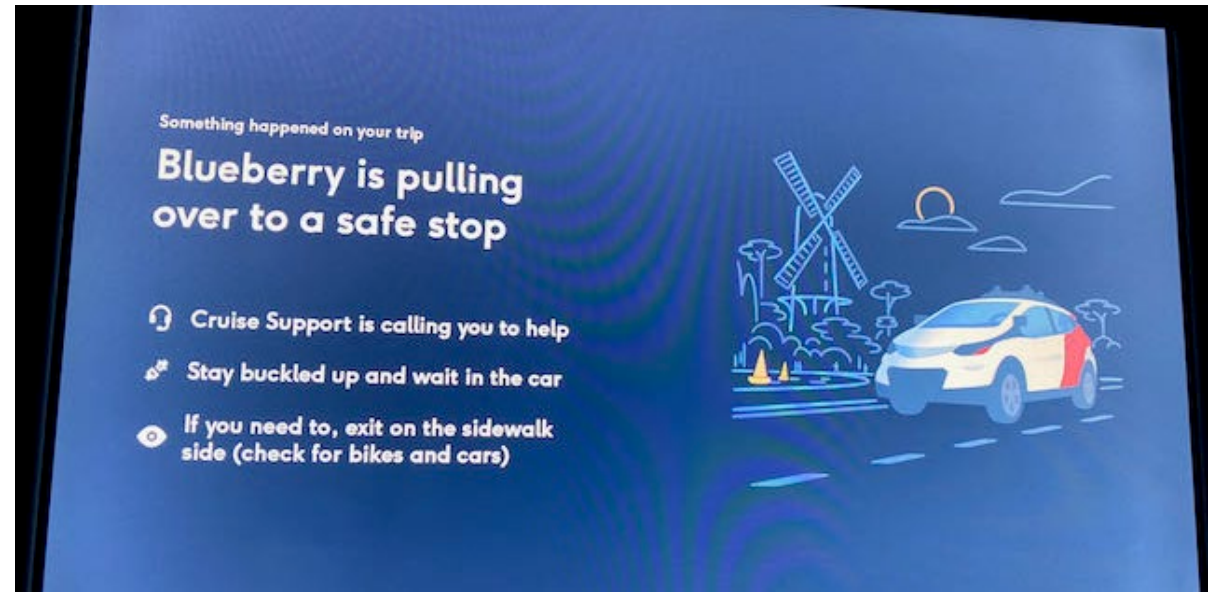
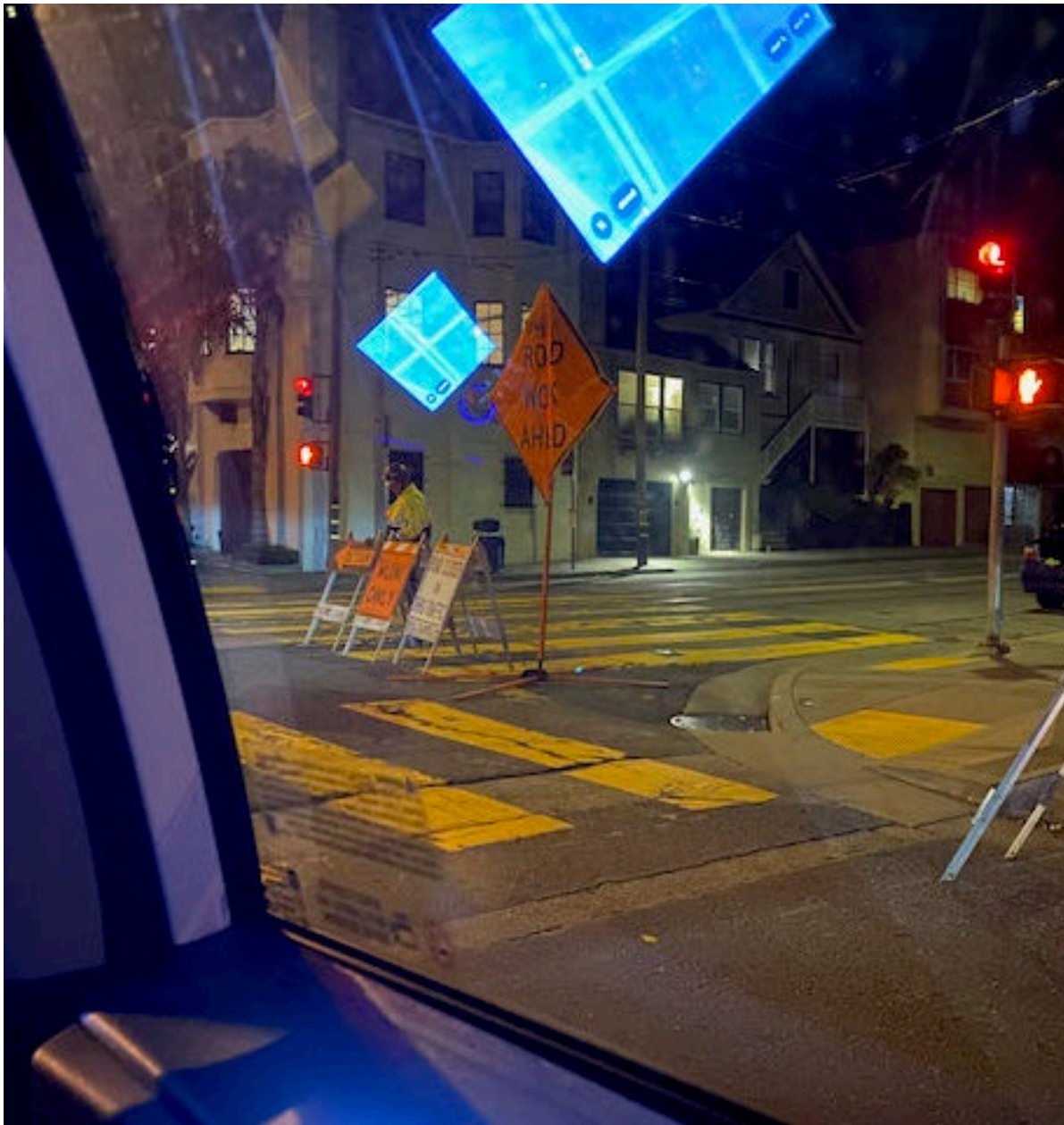
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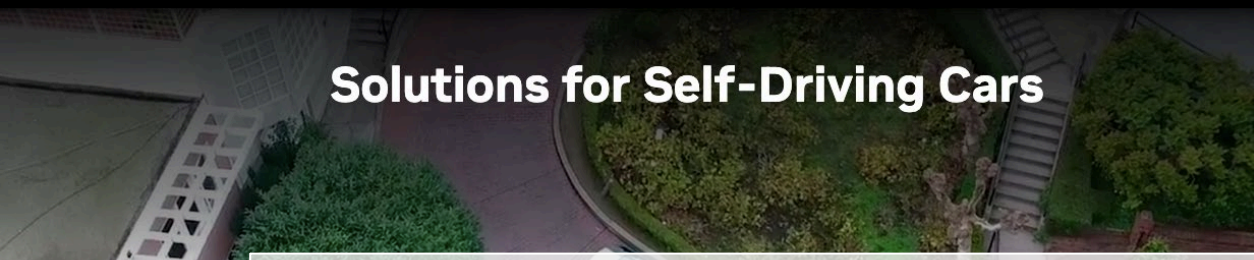
# Import of Monitoring & Incident Response

- **Monitoring systems.** Systems must be capable of tracking vehicle performance, detecting system malfunctions, and responding to unexpected conditions. This includes the integration of advanced sensors, cameras, and radar technologies that provide continuous feedback to both the vehicle's control systems and remote operators.
  - Human-in-the-Loop Control Systems<sup>\*\*</sup>: Despite advances in automation, the inclusion of a human-in-the-loop (HITL) system for oversight and intervention remains important. This approach ensures that human operators can take control of the vehicle in complex or ambiguous situations where automated systems might struggle. Goal of 10:1 ratio.
- **Incident Response:** Collecting and analyzing data from AV operations helps identify patterns that can lead to improvements in system design and operation. This includes analyzing incidents or near-misses to refine algorithms, and curbside infra interface for PODU.
  - Curbside interface important forthcoming finding for EUCAD 2025





Learn AI and accelerated computing essentials at GTC on March 20-23. See recommended sessions. ▾

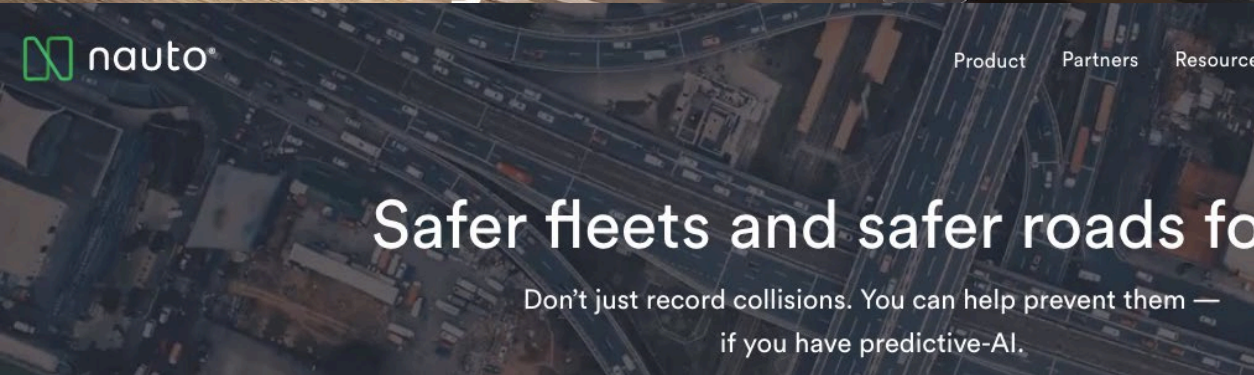


# Solutions for Self-Driving Cars



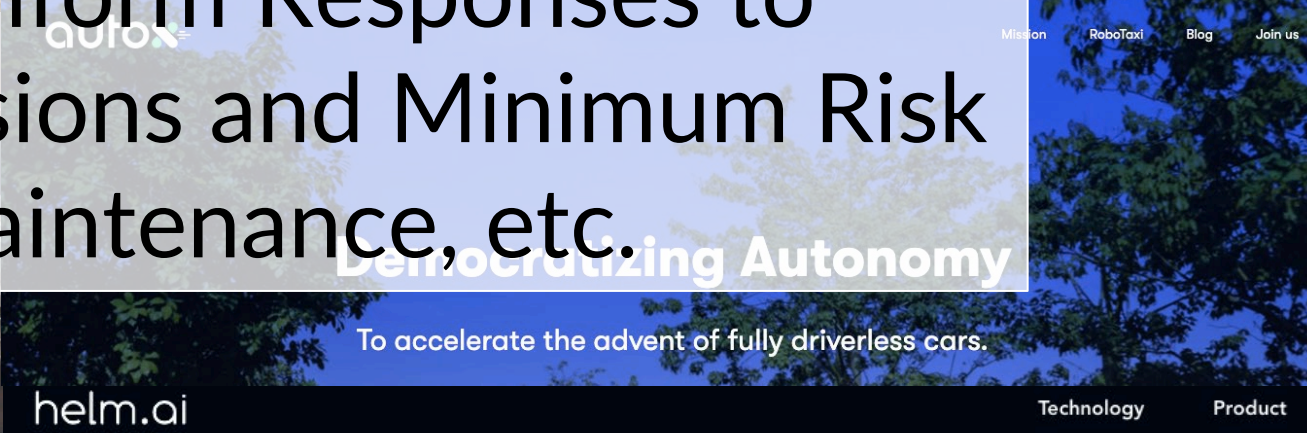
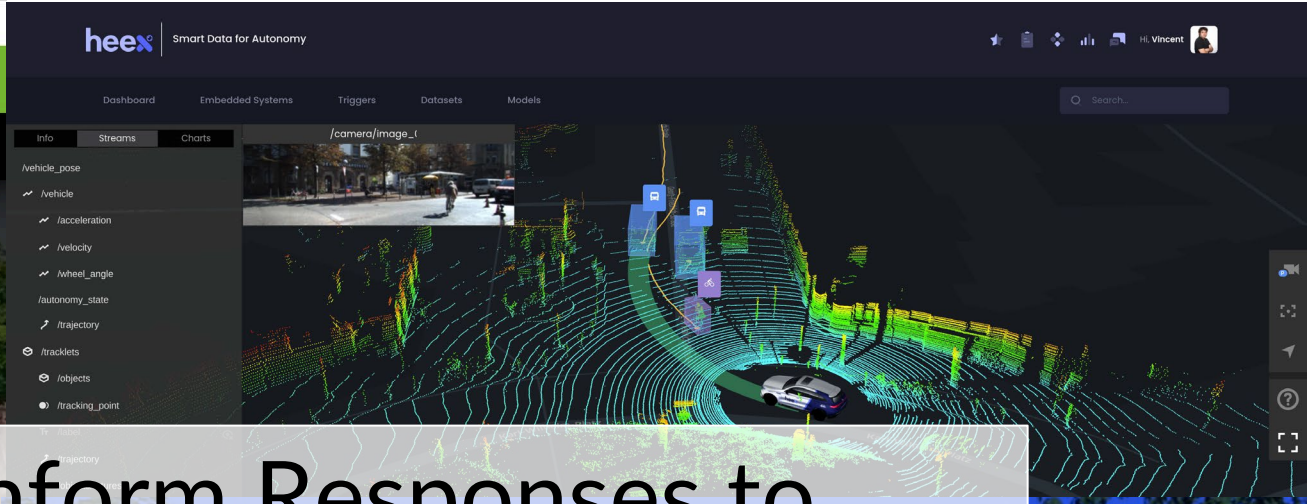
# Self-driving for everyone.

# Dynamic Data to Inform Responses to Disengagements, Collisions and Minimum Risk Conditions, Maintenance, etc.



# Safer fleets and safer roads for

Don't just record collisions. You can help prevent them — if you have predictive-AI.



## Democratizing Autonomy

To accelerate the advent of fully driverless cars.



# Importance of Planning ODD

“Build up” Approach to Fleet Operations  
<https://getcruise.com/news/blog/2022/the-cruise-safety-report-advancing-our-safety-mission-through-a-transparent-and-holistic-approach/>

Constraint Types	Example Constraint Tiers
Geofence Constraints	<ul style="list-style-type: none"><li>Fixed route driving</li><li>Limited geofence driving</li><li>Expanded geofence driving</li><li>Full geofence driving</li></ul>
Operational Hour Constraints	<ul style="list-style-type: none"><li>Low traffic hours</li><li>Expanded traffic hours</li><li>Full operational hours (i.e. 24/7)</li></ul>
Passenger Constraints	<ul style="list-style-type: none"><li>Test Operators</li><li>No Passengers</li><li>Internal Employee Passengers</li><li>Public Passengers</li></ul>
Fleet Size Constraints	<ul style="list-style-type: none"><li>Single Driverless AV Operations</li><li>Pilot Fleet (e.g., 10-15 Driverless AVs)</li><li>Limited Fleet (e.g., 50+ Driverless AVs)</li><li>Commercial Fleet (e.g., 500+ Driverless AVs)</li></ul>

# Public-Private Dialogues More Important than Ever

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Work closely with city officials and regulatory bodies to develop policies that support innovation while ensuring safety is critical. Involves **transparent reporting of system capabilities**, performance data, and safety incidents to build public trust and regulatory confidence.



**Stakeholder Involvement:** Engaging with the community early to be inclusive and aligned with public needs.

# Potential for Digital Transformation of Traffic Management

- Congestion management using technology
  - Digitizing roadways w/ Dynamic signs and lines for prioritization (create network / operational efficiency)
- Increase Carrying Capacity of Lanes with HOV / Transit Dedication
  - priority lanes with new form factors
  - Automated cars / shuttles
- Retooling incident / emergency response
  - Infrastructure and Workforce





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