



AI-Powered Lidar: Automating Data Collection to Empower Road Safety & Connected Transportation

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TextTE
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Industry challenges



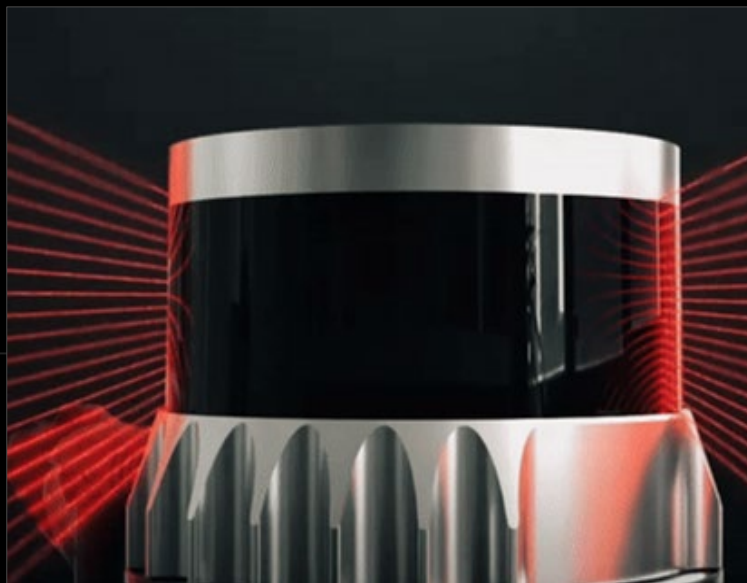
NATIONAL

U.S. pedestrian deaths reach a 40-year high

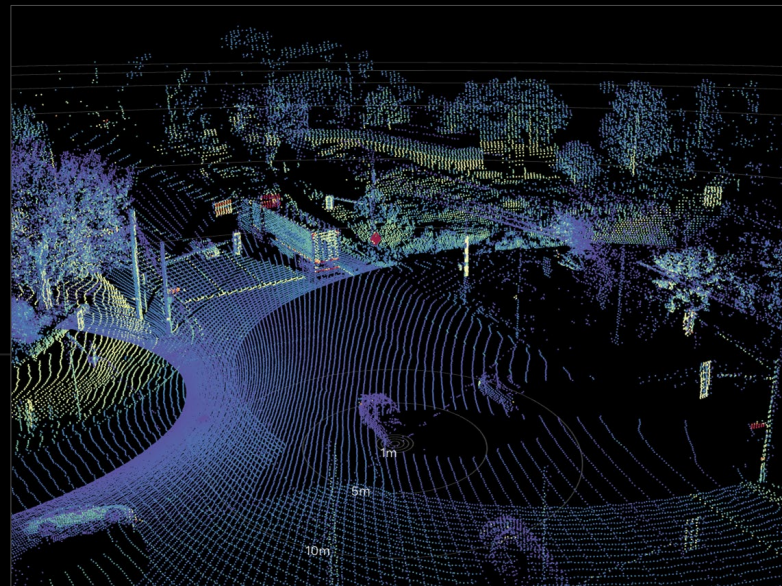


What is Lidar

Laser pulses measure distance to create a 3D map



Point cloud example that shows a 3D digital intersection





Example ITS lidar installations



• San Jose, CA, USA



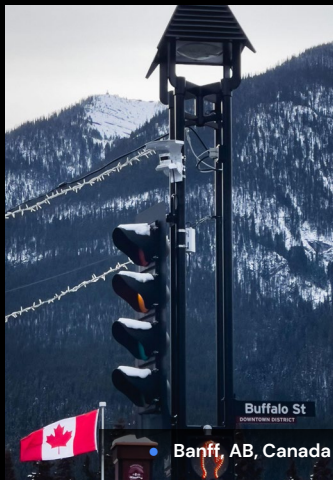
• Atlanta, GA, USA



• Nashville, TN, USA



• Chattanooga, TN, USA



• Banff, AB, Canada



• Salt Lake City, UT, USA



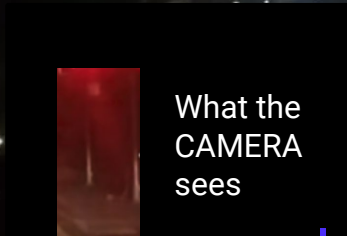
• Toronto, ON, Canada

Continuous data collection in all light

← Pedestrian



← Pedestrian





Vehicle detection in heavy snow

Lidar near
IR channel

[VIEW NAVIGATION]

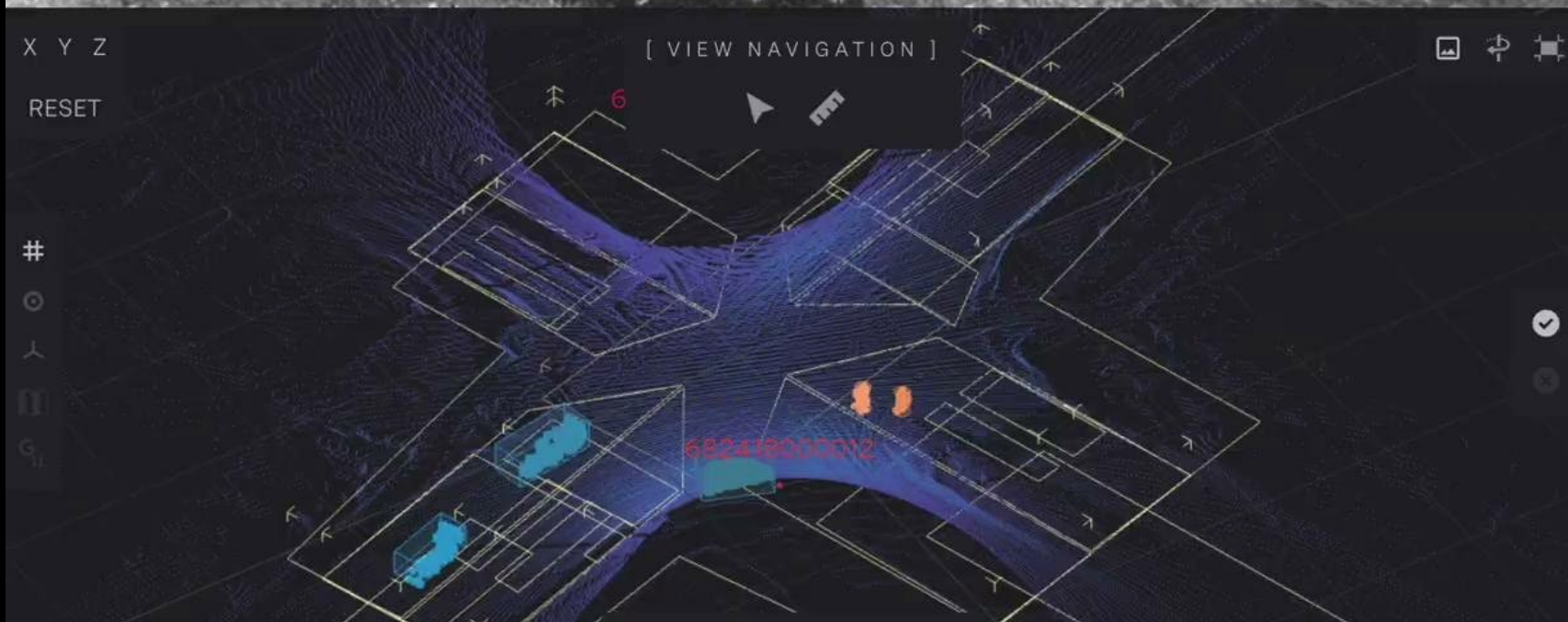
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Pedestrian detection in heavy snow

Lidar near IR channel





The lidar advantage: Privacy by design





Physical AI: A new world in 3D



Traffic actuation

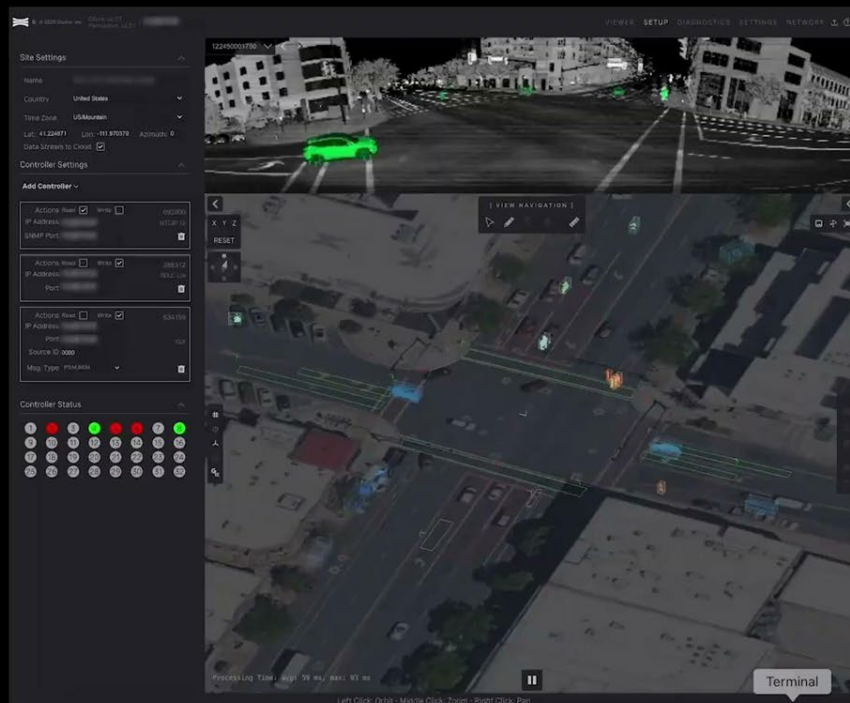
Stop-bar detection that detects, classifies & tracks multimodal road users





Traffic actuation

Pedestrian walk time extension





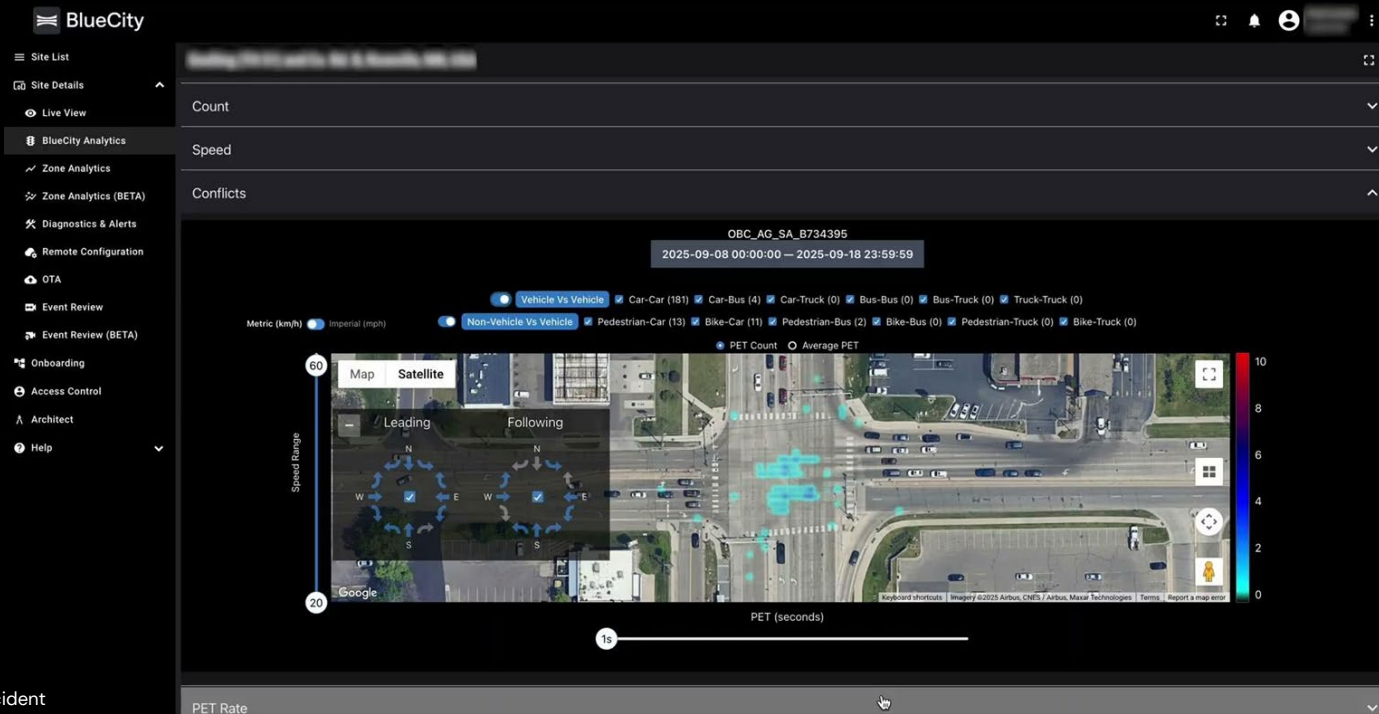
High fidelity data

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Near miss detection - veh & bike

For every 300 near-misses = 29 minor injuries and 1 major injury or fatality*



* (Heinrich's Accident Triangle)

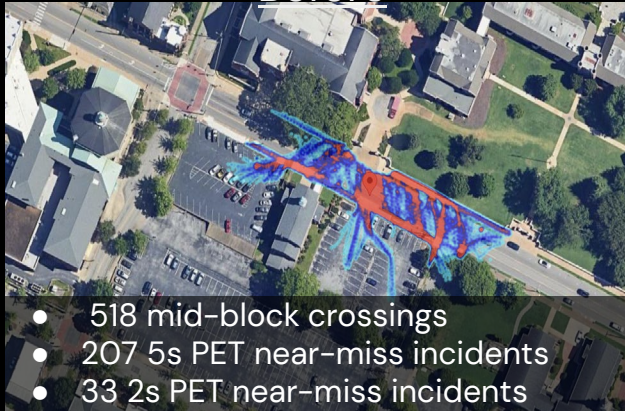
Pedestrians outside of crosswalks

7,500 pedestrians were killed by drivers in 2022
(The Governors Highway Safety Association)



Near-miss & crosswalk traffic study in Chattanooga, TN

Before



After crosswalk installment



“Ouster BlueCity already led us to install a crosswalk that resulted in a 100% reduction in near-miss incidents on a high-risk city block.”

Mina Sartipi, Founding Director of the Center for Urban Informatics
& Professor at the University of Tennessee Chattanooga

Source: UTC Research



Highway monitoring



WWD - highway - ramp

© 2025 Ouster, Inc. CHRT: v2.7.1 Perception: OFFLINE EVENT PLAYBACK WWD_Ramp_1_718954

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Sun Sep 07 2025
8:20:38.450 PM



V2X safety messages

(BSM, PSM, SDSM, SAE J2735)



Multiple Texas projects

Install

- Two sensors cover a 4-way intersection
- 13-15 ft on existing traffic pole
- Typically tilt sensor 15° - 20°
- Average 3 hour install

Projects

- Access full safety analytics & actuation in one complete system
- Monitor intersections 24/7
Informed decision based on real-time data
- More agile for safety improvements
- Optimized for all changing traffic conditions and weather
- Highway monitoring & safety events



An aerial LiDAR point cloud visualization of a forest. The ground is represented by a dense layer of blue points, while the trees are shown as vertical columns of red and yellow points. A white grid is overlaid on the entire scene, dividing it into a 3x3 grid of squares.

Thank you

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