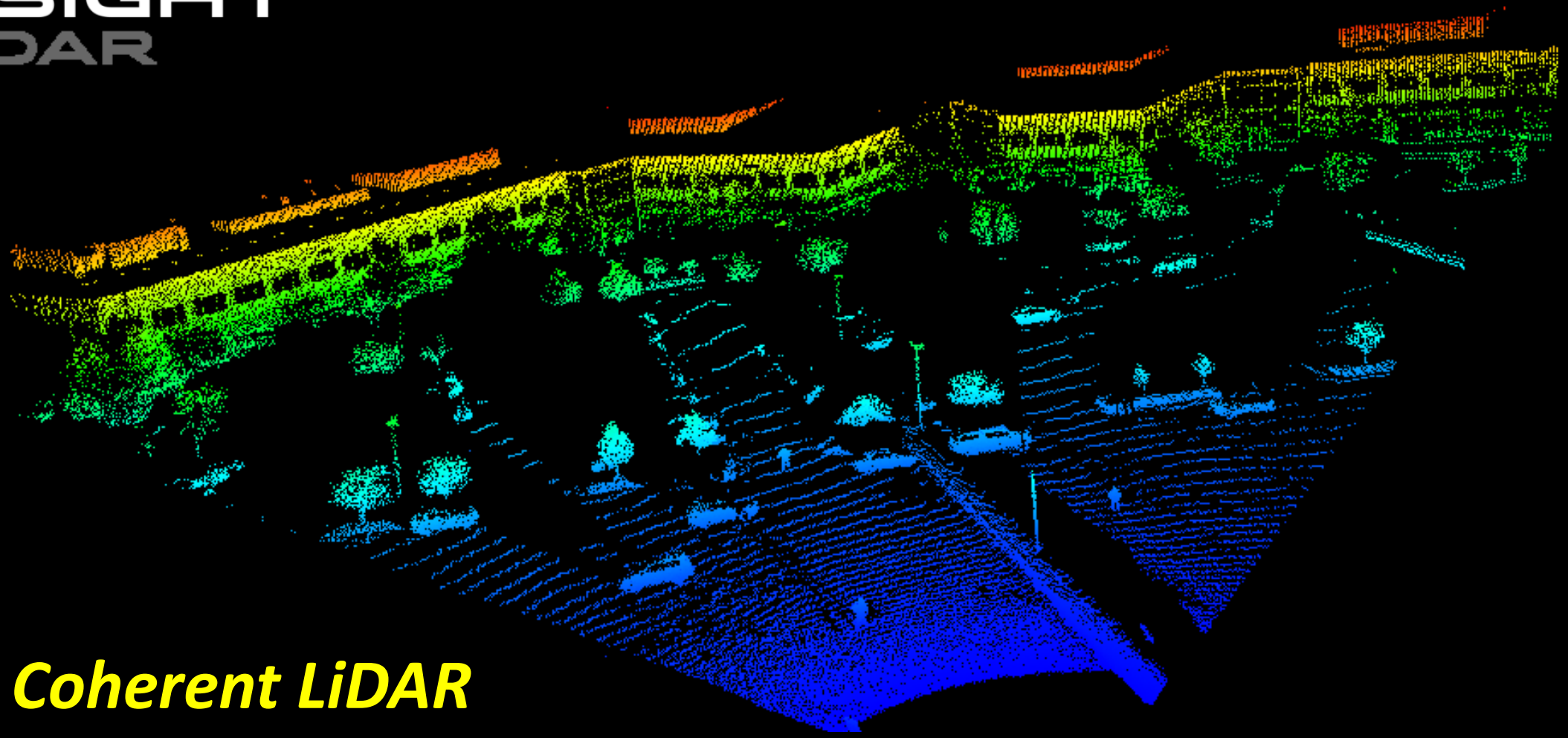
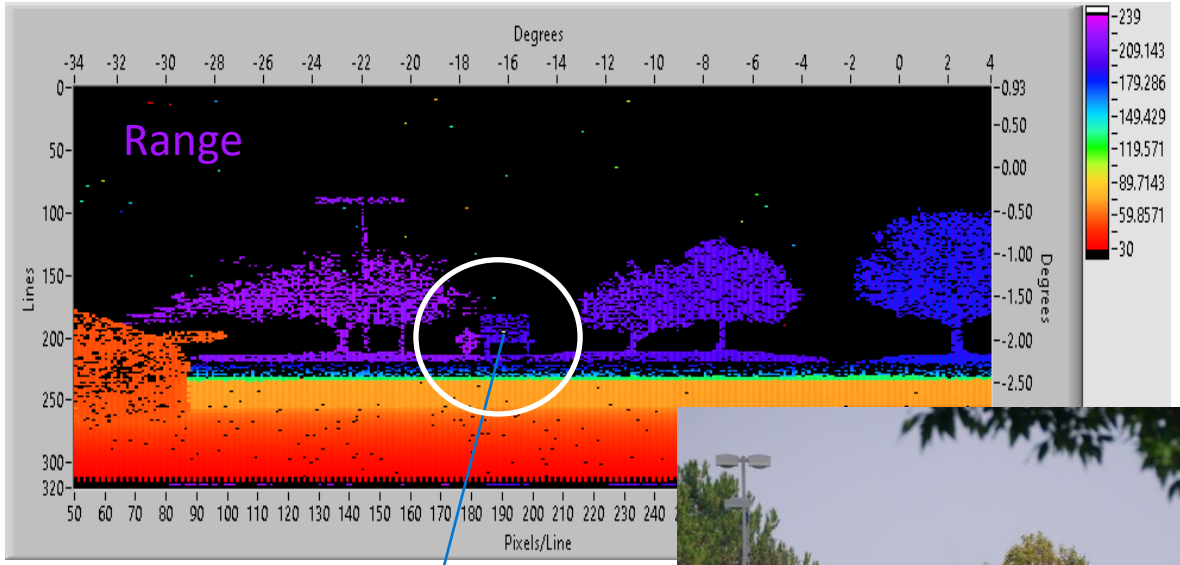
INSIGHT LiDAR

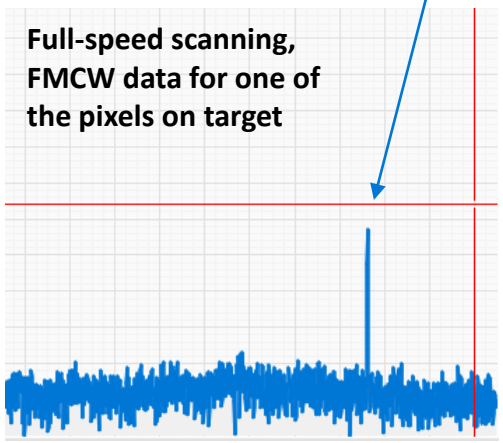


Digital Coherent LiDAR

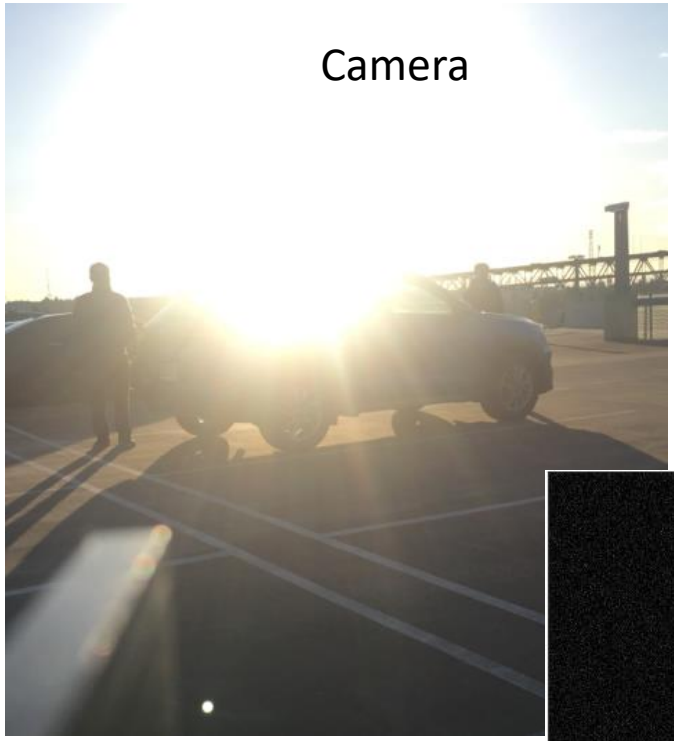
Chris Wood - EPIC Online Technology Meeting
on New Developments in FMCW LIDAR

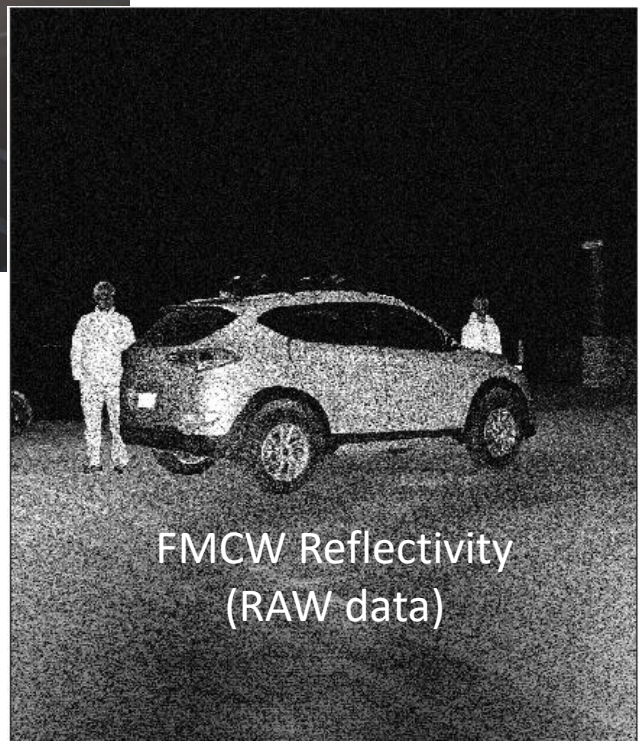
FMCW: Long-Range + Resolution + Immunity to Interference



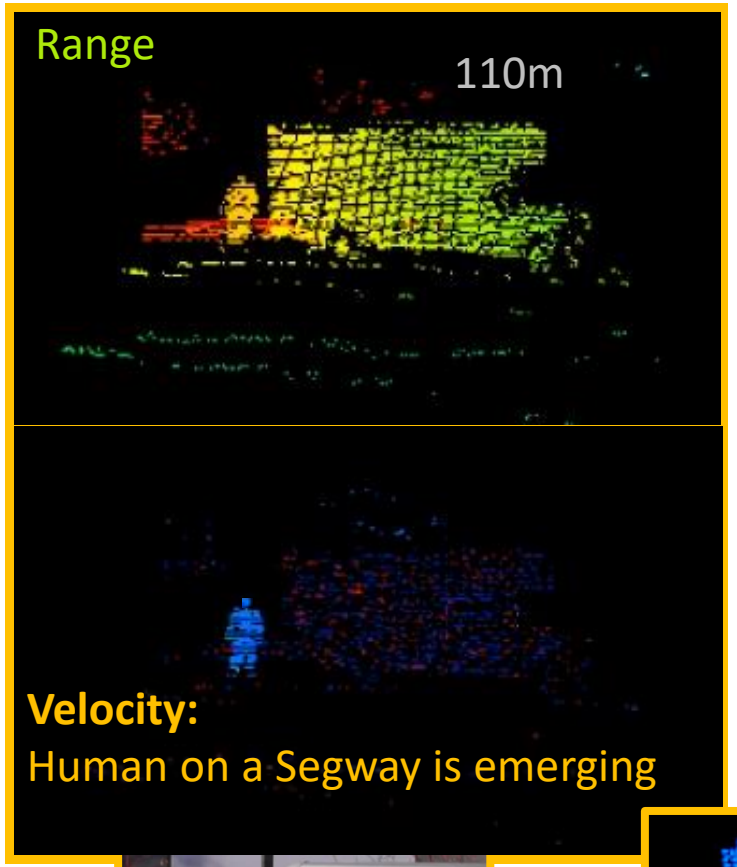


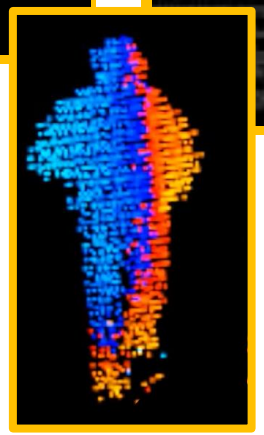
Note: Making sense of targets at 200m range typically requires ***higher resolution*** – better than the 0.1° x 0.1° offered by many LiDAR suppliers.

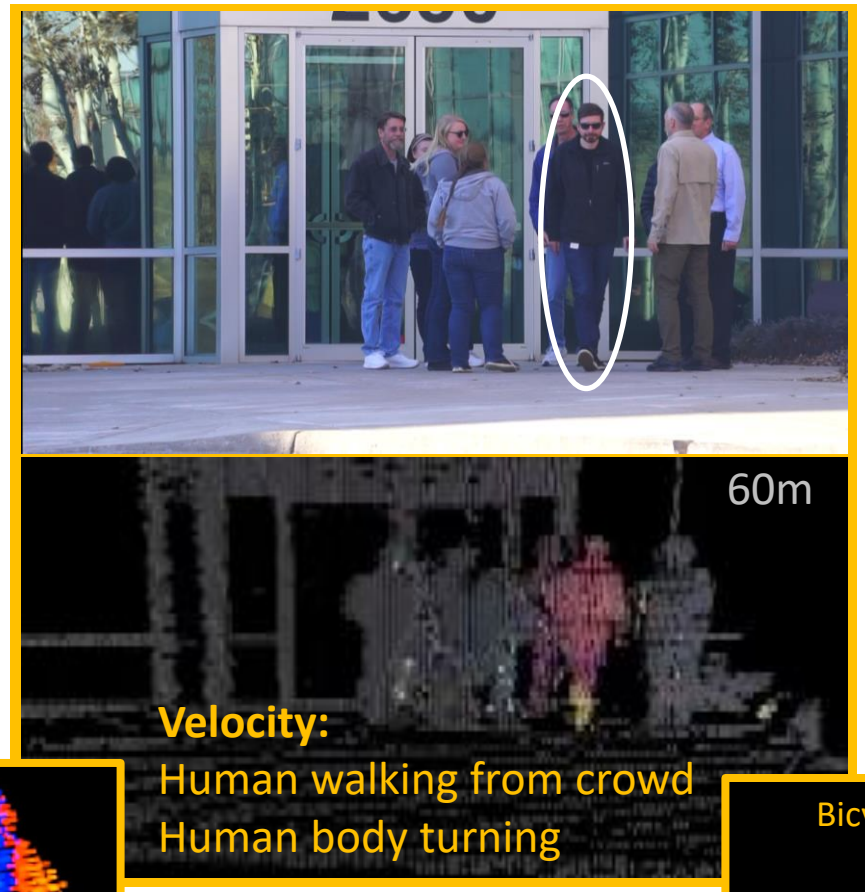


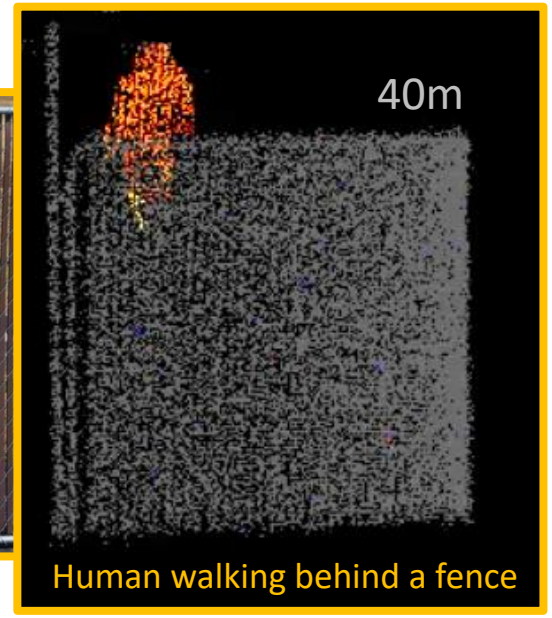


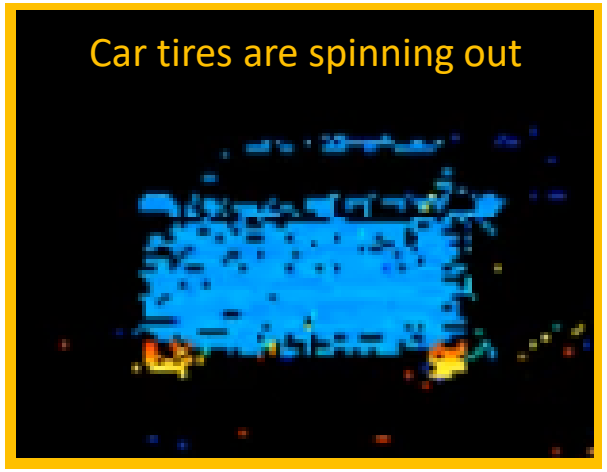
FMCW Velocity: Rapid Target Discrimination



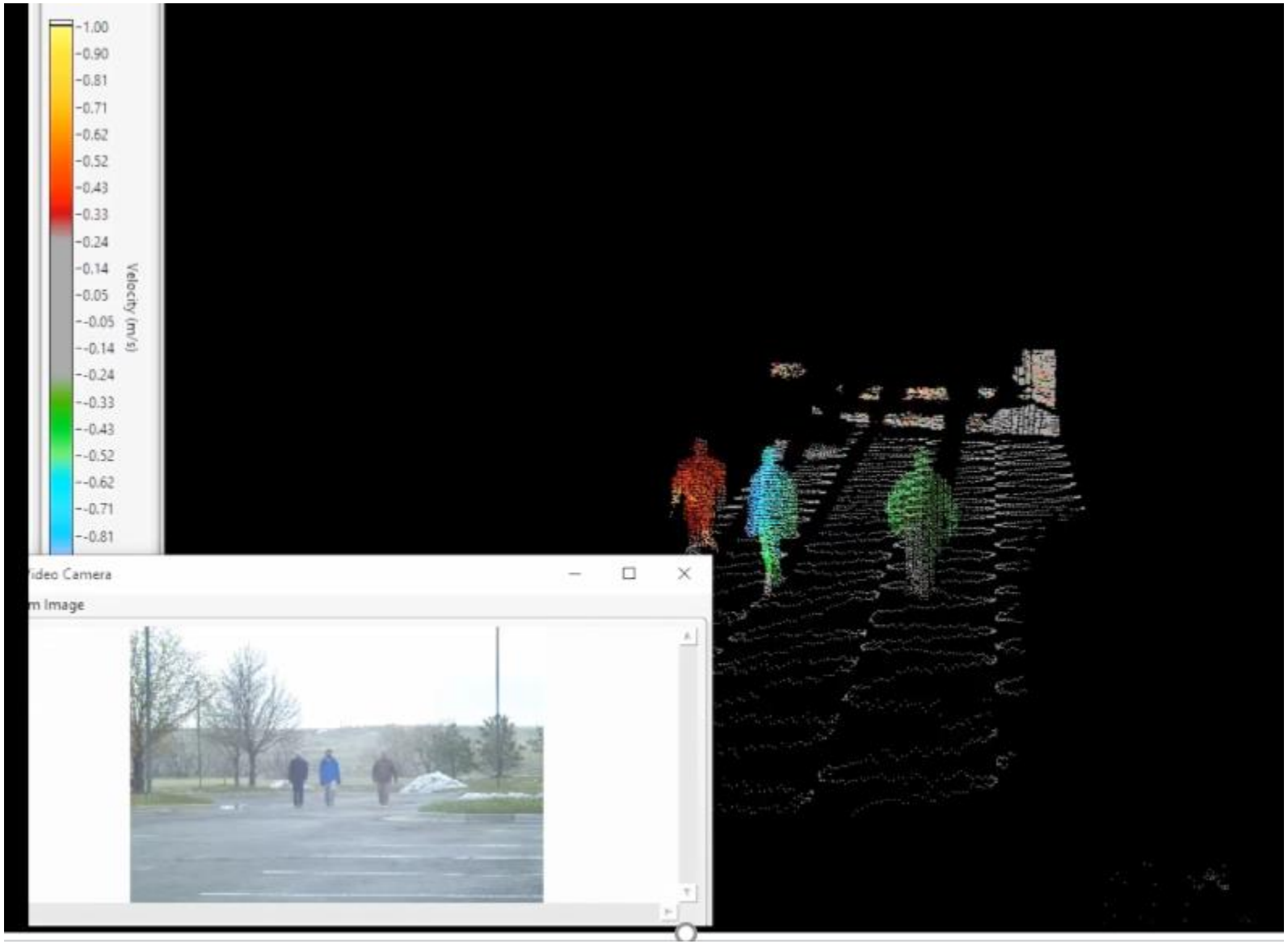




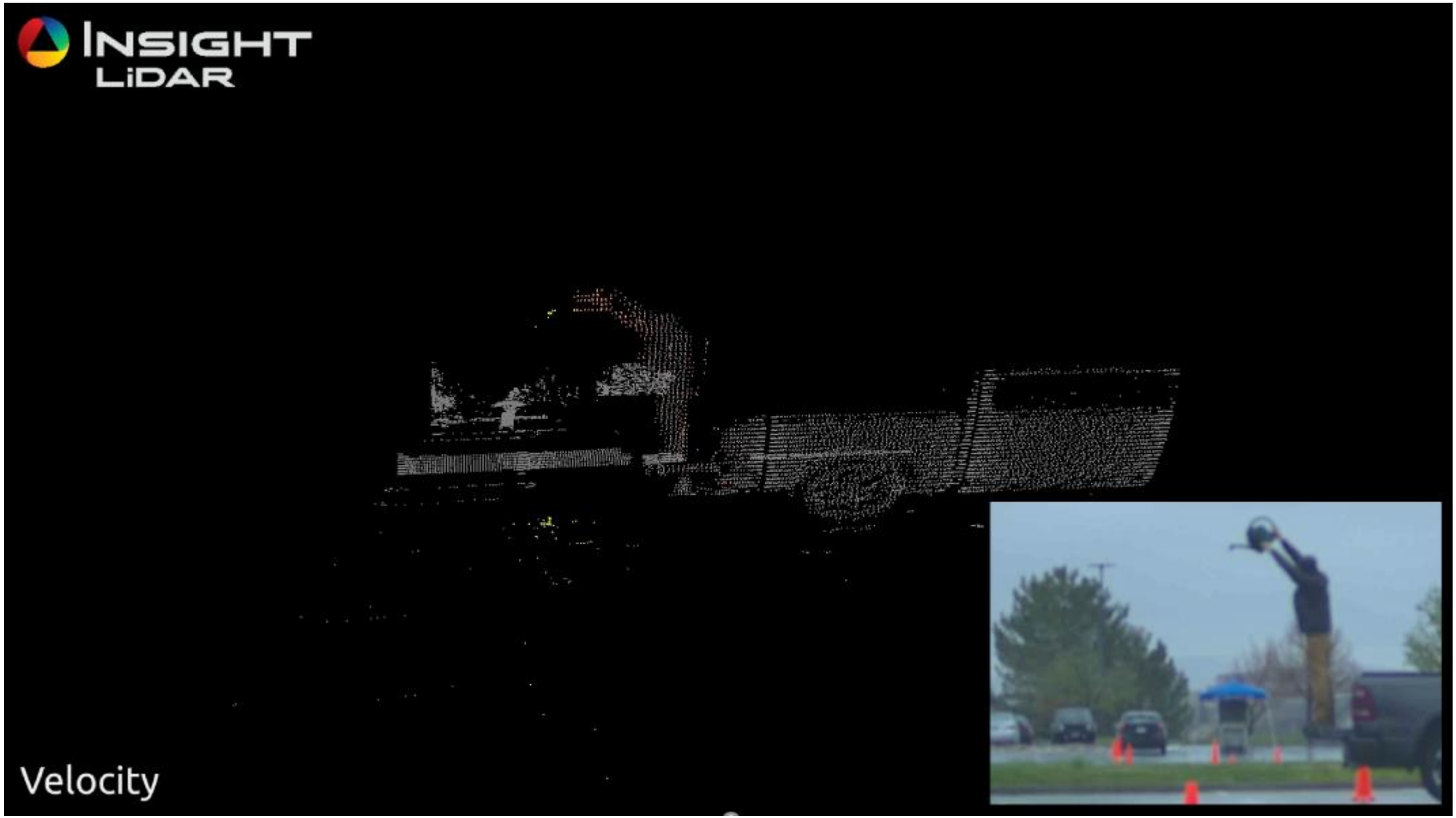




FMCW Velocity: Pedestrian Gestures ~40m



Rain, plus Simulated Heavier Rain, 10%R Target at 187m



Insight LiDAR's All-Solid-State, "Fast Axis Scan"

- ✓ **NOT an OPA**
- ✓ **Outperforms an OPA in every metric**
- ✓ **Extremely low optical loss**
- ✓ **Ultra-high/programmable resolution**
- ✓ **High reliability, flexible scanning, no moving parts**
- ✓ **Enabled by Insight's wide-tuning laser and associated high-speed control algorithms**
- ✓ **Programmable/steerable *foveation***
- ✓ **Steerable region is capable of up to 0.025° x 0.025° resolution**
- ✓ **120° x 30° total Field of View**
- ✓ **> 3MPixels/sec**

Speed slowed down for humans

What is Insight LiDAR looking for?

1. Hybrid PIC Assembly and Packaging
   - Willing to work from prototype through high volume
   - Novel PIC packaging, leading to lower costs

2. PIC Coupling Efficiency!
   - All users of PICs desire higher optical coupling efficiency in/out
   - ***In FMCW LiDAR, longest range return signals are ~ few photons***