"My WiFi is not working!" Augmenting Wireless Awareness in Consumers via XR

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Fixing wireless is difficult for consumers

- Environment significantly affects wireless signals
- Difficult to prescribe customer specific solutions
- Current approaches:
  - Measurements on devices
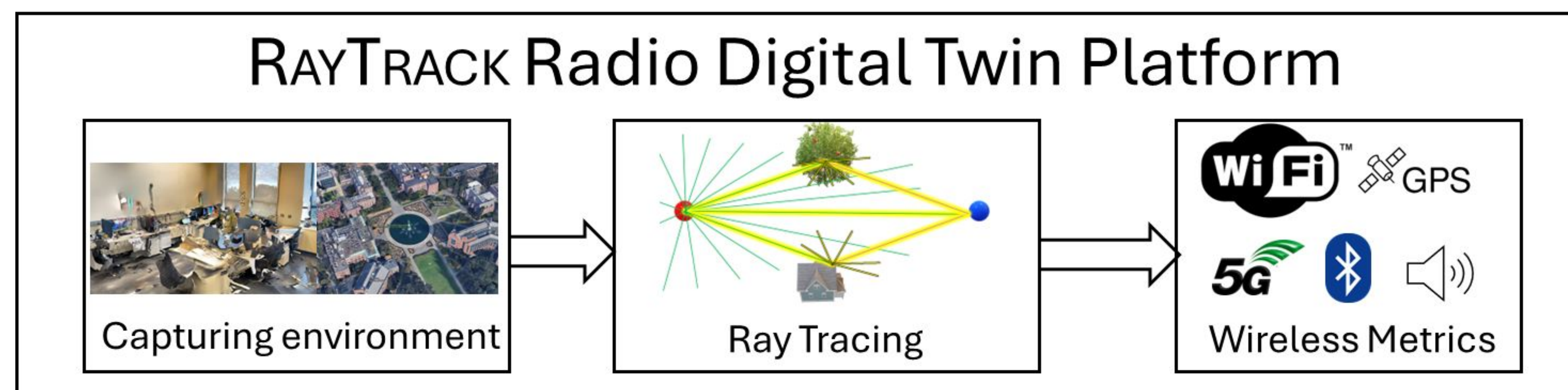 - Move the router antennas
  - Change router location randomly

Issues :
1. Takes too much time!
2. Depends on anecdotal analysis
3. Can reduce coverage at other locations

New Opportunity : Capture the environment directly

Our Vision

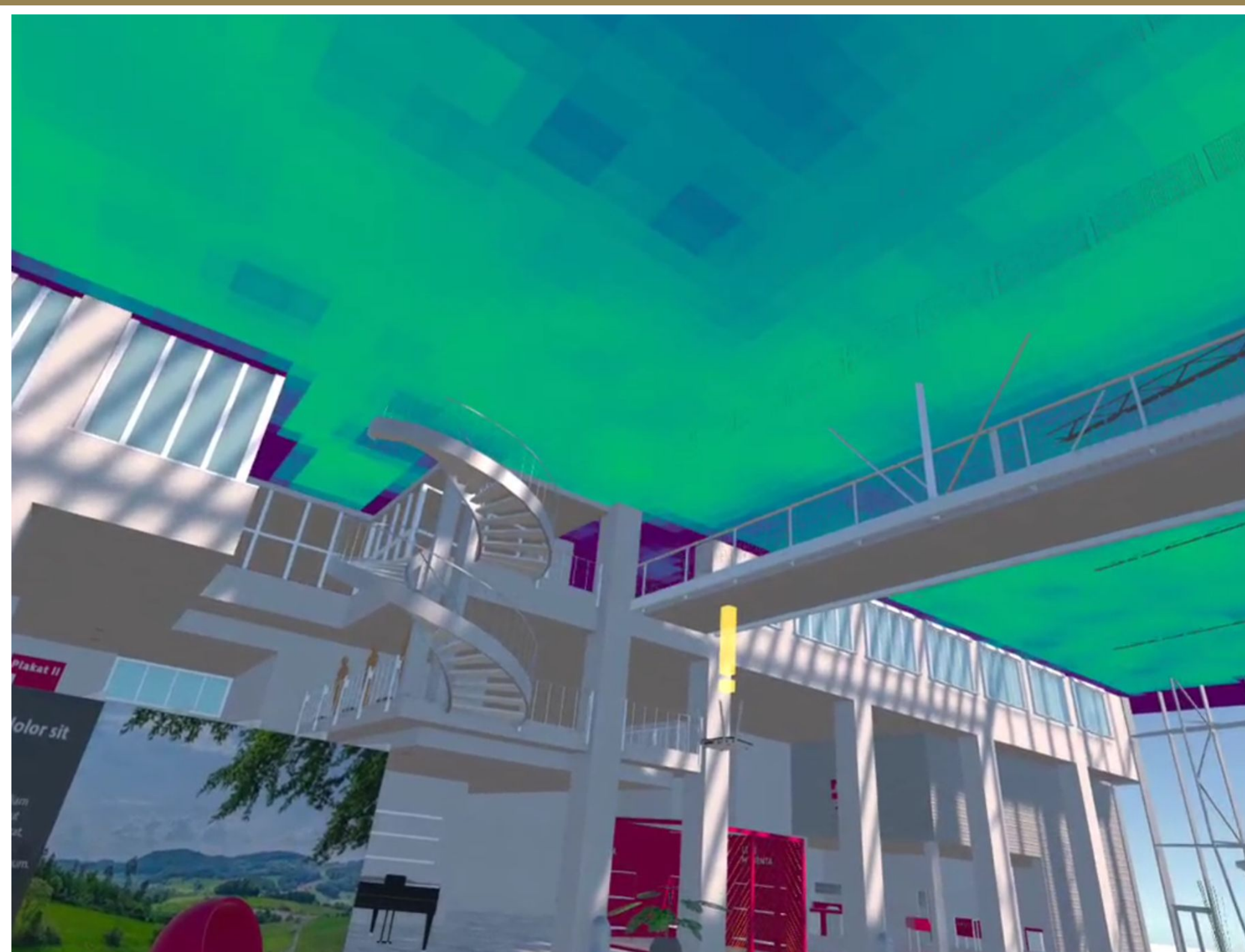### Personalized Radio Digital Twins for Wireless Consumers

RAYTRACK Radio Digital Twin Platform

Capturing environment → Ray Tracing → Wireless Metrics

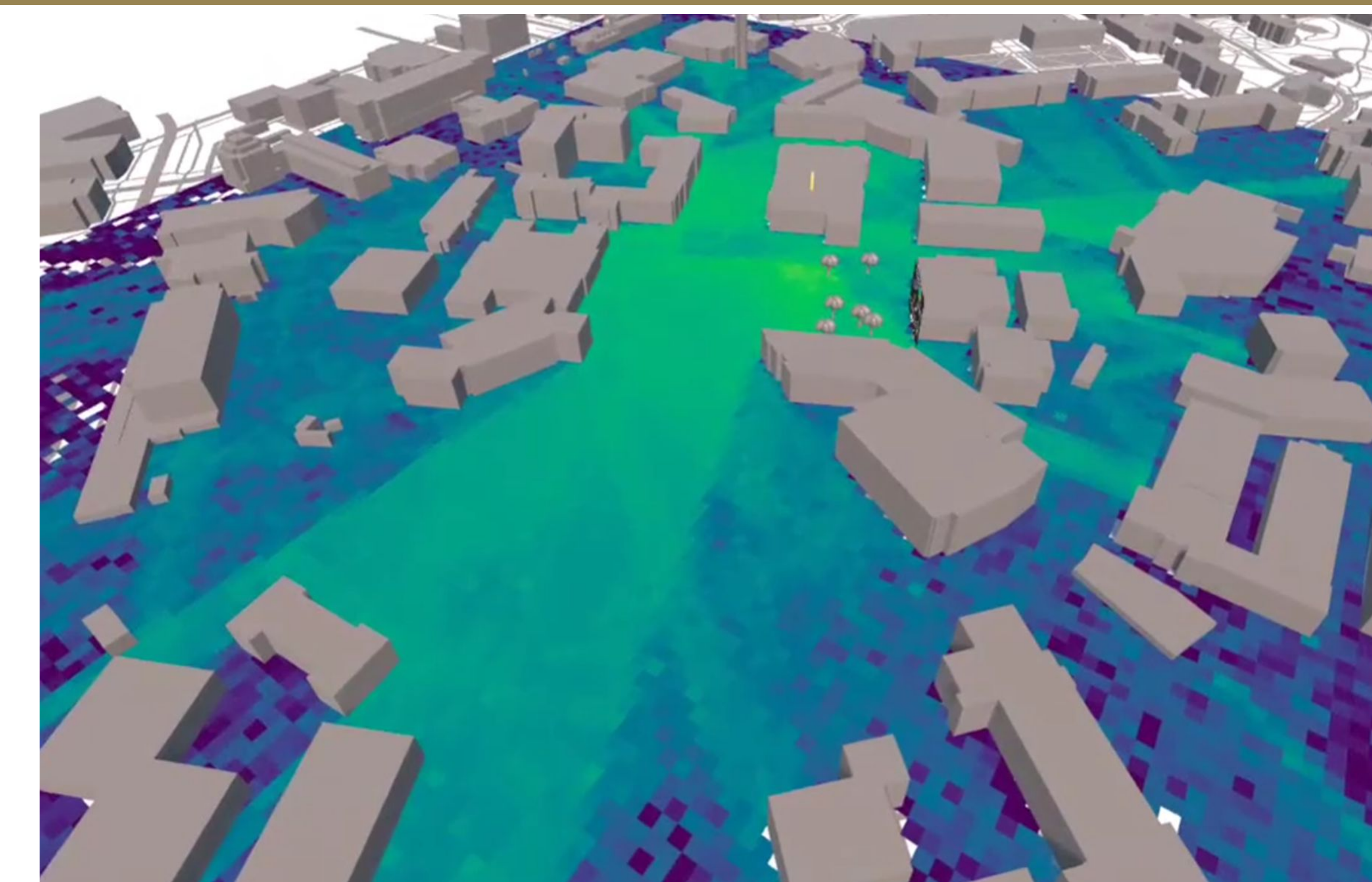| Phone (Indoor) /Satellite Images (Outdoors) LiDAR + Camera | Parallelized SBR Tools Sionna/Matlab Antenna and Surface Modelling | Based on Impulse Response Communication Theory Reinforcement Learning |

Demo 1 – Large Scale Indoor Propagation

Experience the propagation of WiFi in 3D for complex indoor environment

Demo 2 – Indoor WiFi Coverage

Customize WiFi indoors on captured environment for improved coverage

Demo 3 - Outdoor Cellular Deployment

Modelling Cellular Coverage Outdoors for Improving Consumer Experience

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