**Reliable Radar for Real-time Results**

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**Background**

The automotive industry is rapidly integrating autonomous safety features. Visible light cameras, thermal, LiDAR, and radar are competing to be the main sensor system. Millimeter wave radar is small, affordable, and is superior in harsh conditions.

However, only objects within the line of sight can be detected. A cyclist behind a corner will not be seen by a single point radar node. A network of radar nodes would allow a reconstruction of a complete fused scene.

**Overview**

**Radar Node**
- Capture radar data, process locally, send wirelessly over network in real time
- Jetson starts Radar Board using mmWaveLink
- DCA sends sampled radar data back to Jetson sockets
- Processed Data is sent wirelessly to remote PC

**Radar Network**
- Data from multiple nodes is sent wirelessly to a host computer for advanced analysis. RADAR field of views will be fused.

**Future of Networking**

**Signal Flow Diagram**

**RadarPipeline**
- Custom C++ repository built by FusionSense
- Performs full signal flow from data acquisition to visualization in real-time using multiple threads
- Built for the Linux platform, running on Jetson
- Open source & available on GitHub

**DCA1000 CLI**
- Setup & Control DCA1000EVM data capture board by Texas Instruments (TI)

**mmWaveLink**
- Setup & Control AWR2243 radar board by TI
- Ported from Windows to Linux

**Range Doppler Map Results**

**Software**

**Acknowledgements**

Capstone Advisors: Professors Ilan Ben-Yaacov & Luke Theagarajan
Project Advisors: Professors Jim Buckwalter & Upamanyu Madhow
Special Thanks: Professor Yogendra Suikapali, Daniel Gusland
Capstone TA: Shana Sandhu

Collaborators

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