



Centre for Metamaterial
Research and Innovation

EPSRC Centre for
Doctoral Training
in Metamaterials

XM^2



Engineering and
Physical Sciences
Research Council

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Increasing Demand on Antenna Systems



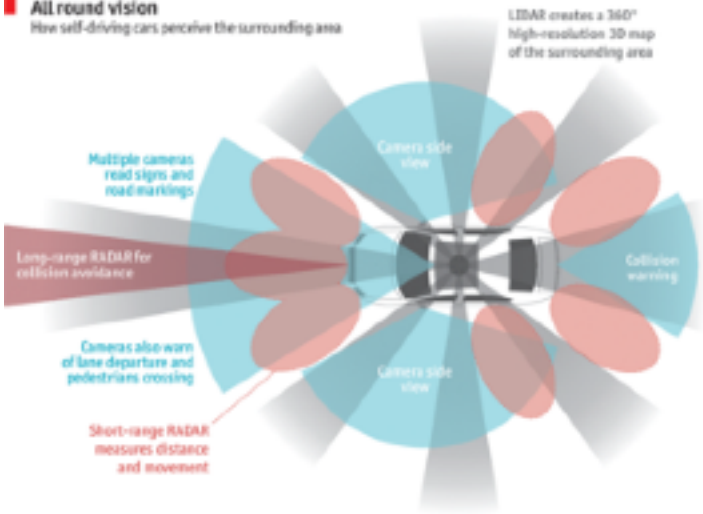
<https://www.youtube.com/watch?v=fCL16kxFFTg>



- <https://studentwork.prattsi.org/infovis/visualization/evolution-of-mobile-phone/>
- <https://www.miwv.com/what-is-6g/>
- <https://www.economist.com/graphic-detail/2018/03/02/self-driving-cars-need-plenty-of-eyes-on-the-road>

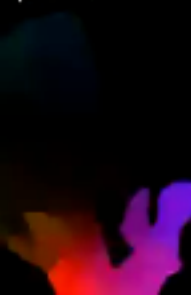
All round vision

How self-driving cars perceive the surrounding area





Optical Flow Stream:



RGB Image Stream:



Driver Activity Recognition:

Holding Guitar

MUo-Label Confidence: 94.33%

Playing Guitar

MUo-Label Confidence: 81.03%

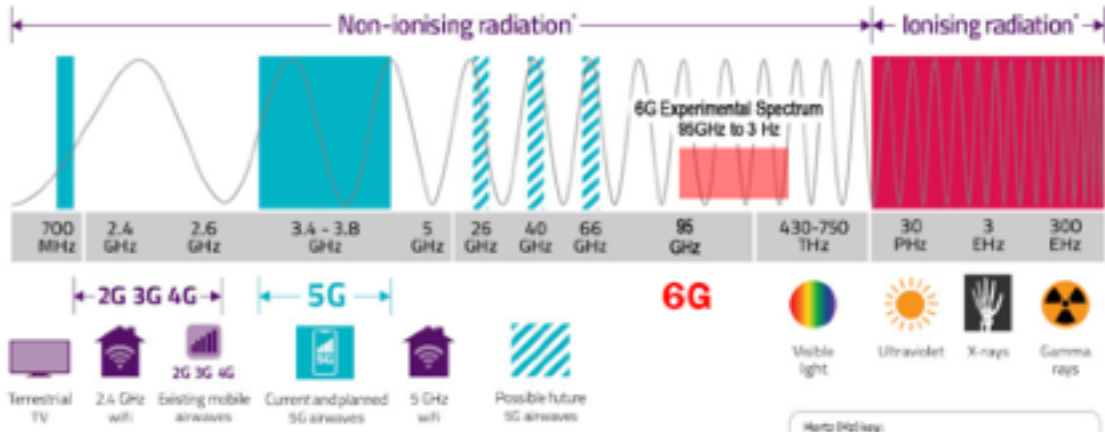
Drinking Water/Soda

MUo-Label Confidence: 1.01%

Holding Smartphone

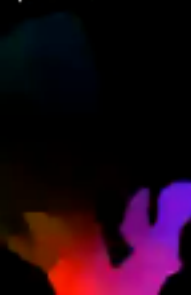
MUo-Label Confidence: 2.05%

Electromagnetic Spectrum and 6G Spectrum





Optical Flow Stream:



RGB Image Stream:



Driver Activity Recognition:

Holding Guitar

MUo-Label Confidence: 94.33%

Playing Guitar

MUo-Label Confidence: 81.03%

Drinking Water/Soda

MUo-Label Confidence: 1.01%

Holding Smartphone

MUo-Label Confidence: 2.05%



Optical Flow Stream:



RGB Image Stream:



Driver Activity Recognition:

Holding Guitar

Multi-Label Confidence: 94.93%

Playing Guitar

Multi-Label Confidence: 81.03%

Drinking Water/Soda

Multi-Label Confidence: 1.01%

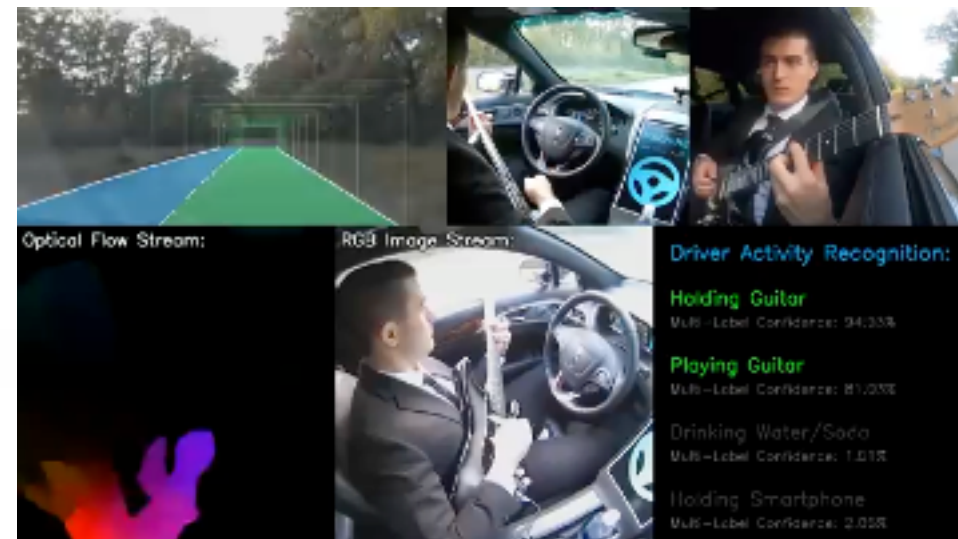
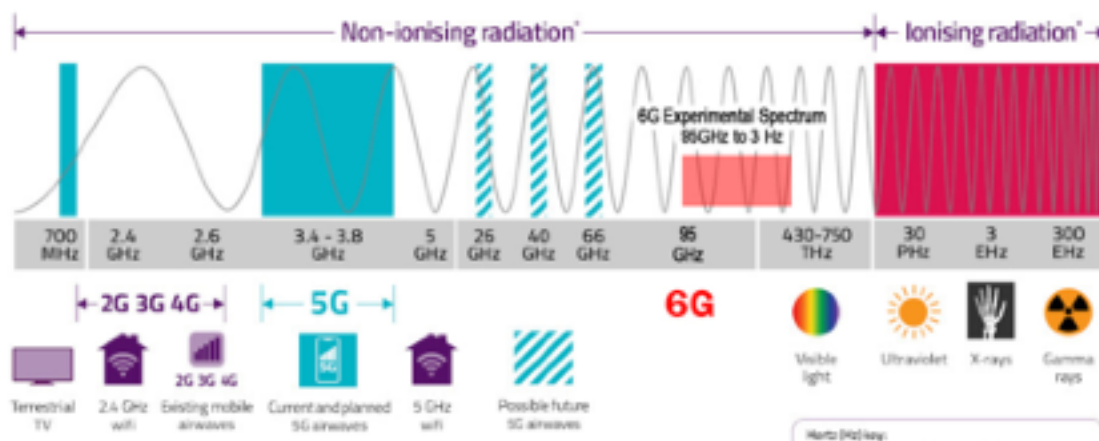
Holding Smartphone

Multi-Label Confidence: 2.06%

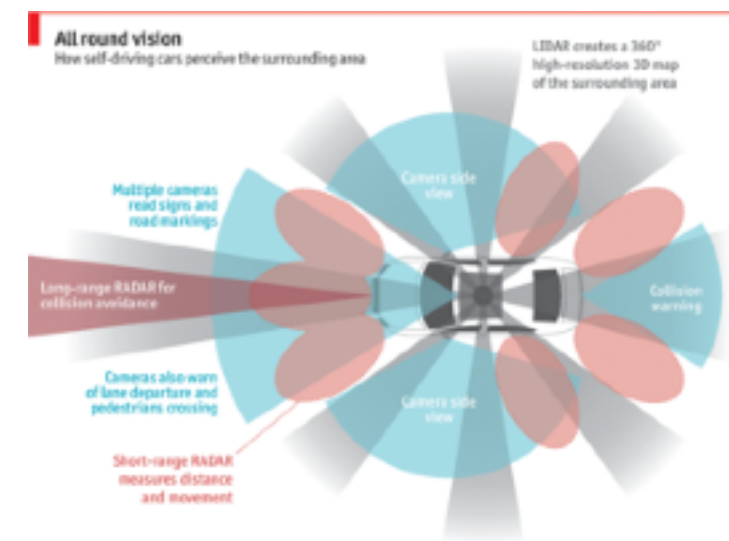
Increasing Demands on Antenna Systems



Electromagnetic Spectrum and 6G Spectrum

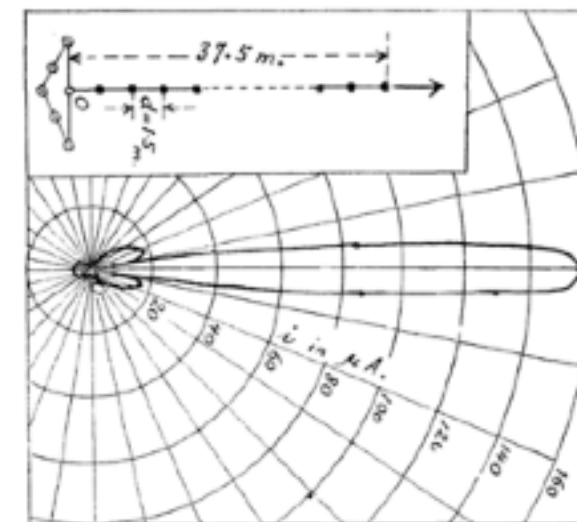
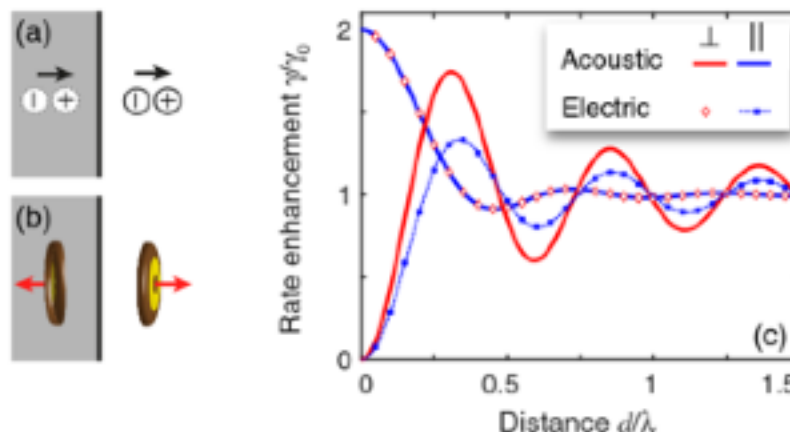
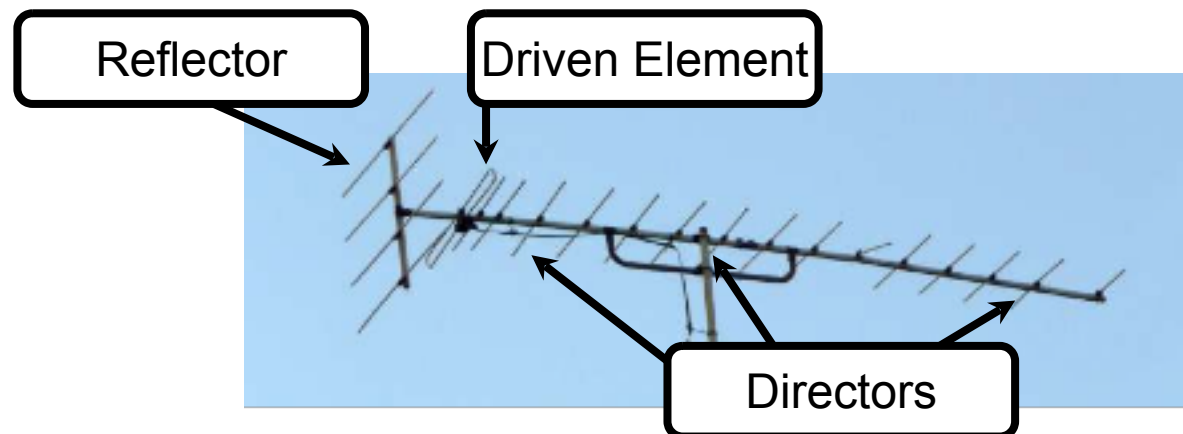
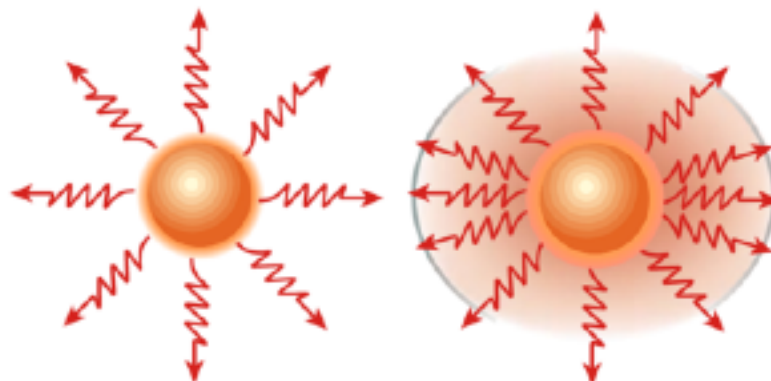


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Modifying the Photonic Environment



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