

Security Assurance in Short Range Communication with Wireless Channel Obfuscation

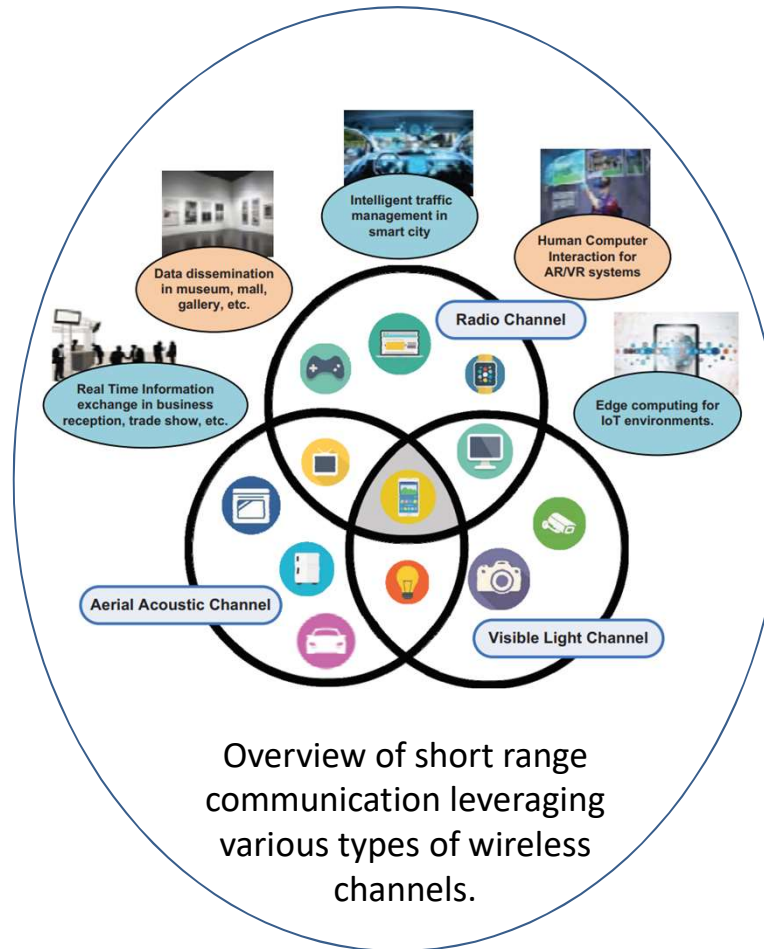


Challenge:

- Retain physical layer security assurance over wireless short range communication for off-the-shelf mobile devices against malicious eavesdropping attack

Solution:

- Obfuscating the wireless signal by **incorporating random channel dynamics** to ensure spatial decorrelation of channel measurements
 - **Power obfuscation** over radio channel for secret key extraction
 - Secure communication over acoustic channel with **obfuscated interference**
 - Obfuscated secret key distribution leveraging **color shift property** over screen-to-camera channel



Scientific Impact:

- Reinforce the physical layer security of short range communication
- Advance the knowledge in exploiting diverse physical layer characteristics for the deployment and adoption of emerging security applications

Broader Impact:

- Secure numerous emerging IoT and AI applications and services
- Push forward the security study for cyber-physical systems
- Offer an interdisciplinary education and research environment for students

#1815908: SaTC: CORE: Small: Collaborative: Security Assurance in Short Range Communication with Wireless Channel Obfuscation

PIs: Hongbo Liu (Indiana University Purdue University Indianapolis), Yingying Chen (Rutgers University)