



- **Challenge:** Eliminate “Self-Inflicted” RF Spectrum Scarcity

- **Solution:** Cognitive, Dynamic Spectrum Access

- **Research Areas (NSF funded)**

- RF Interference Identification and Mitigation

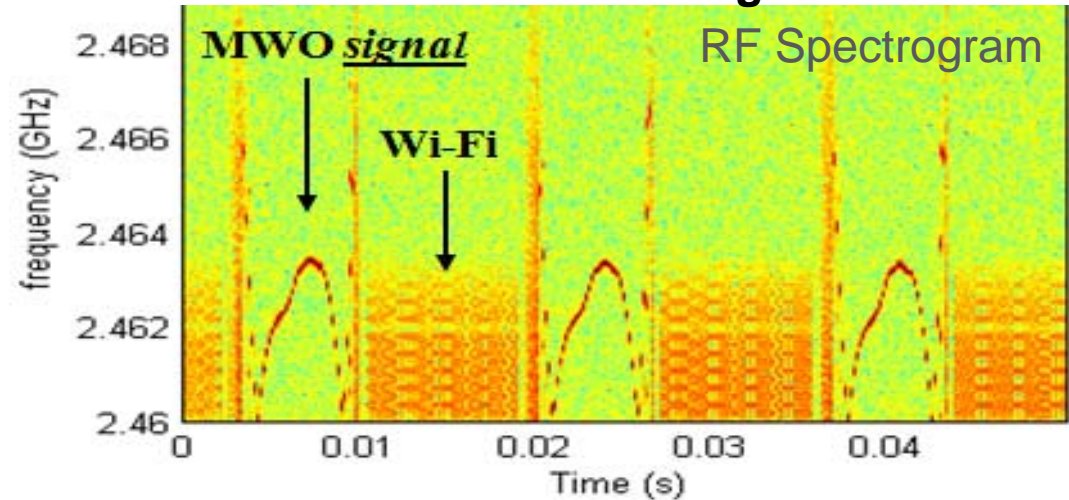
- RF Spectrum Observatory

- IIT Tower Roof

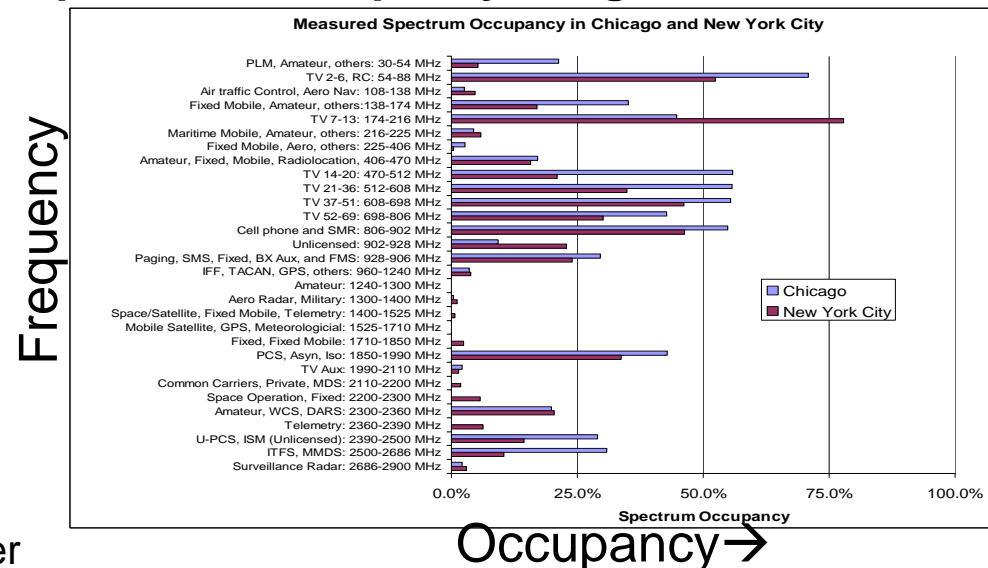
- Network Protocols for Efficient Spectrum Use

Progress

- MWO Wi-Fi Interference Mitigation

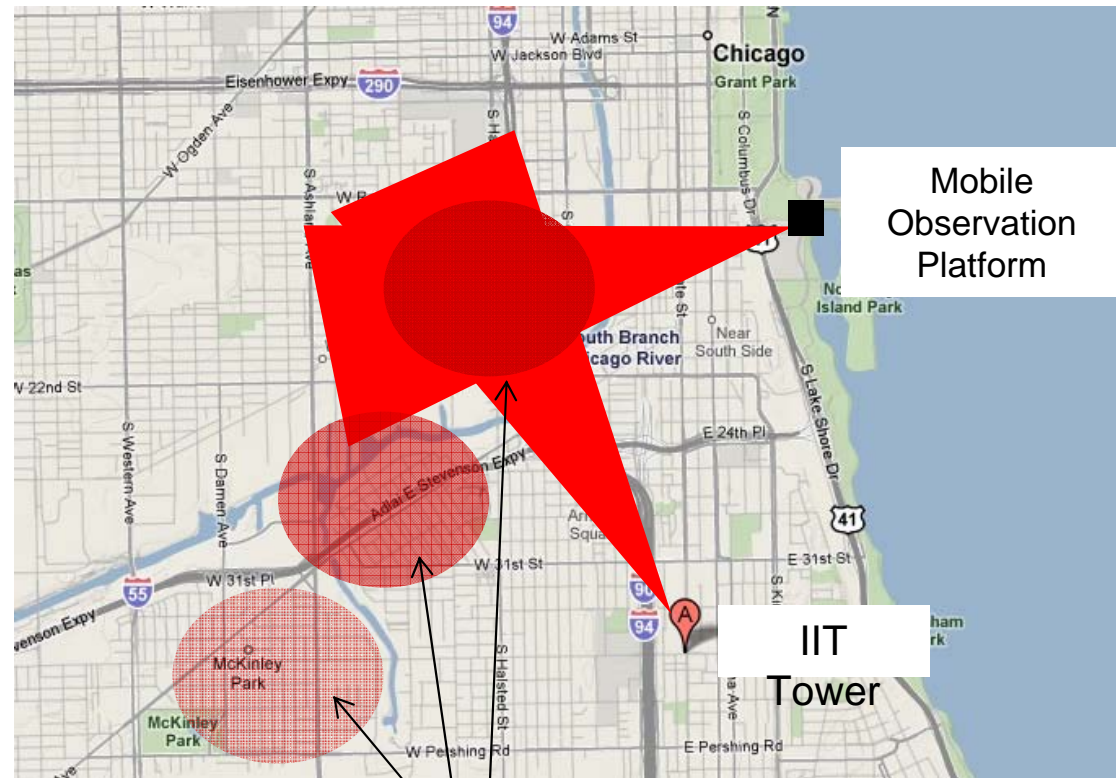


- Spectrum Occupancy Insights



* C. Hood, Director, Co-Founder; D. Roberson, Co-Founder

Mobile and Nationwide Spectrum Observations



Wireless Utilization Levels

- Locate Wireless Utilization Intensity Geographically
- Visualize Intensity Changes Over Time
- Insights into Digital Divide
 - Wireless \leftrightarrow Internet
- Multi-Disciplinary Collaboration
 - IIT: CS, ECE, Social Sciences
 - Govt: City of Chicago
 - Corporate: Motorola, Shared Spectrum Inc.
- Vision: Nationwide Observatory Network

Areas of Possible Collaboration



- **WiNCom Can Offer**
 - RF Spectrum Observations
 - Signal Identification
 - Wireless Measurements
 - Faraday Cage
 - Network Modeling and Simulation
- **WiNCom Seeks**
 - Communication and Information Theory Expertise
 - Detection and Estimation
 - Analysis and Reduction of Large Data-Sets
 - Distributed Data Collection
 - Cognitive and Software Radio Expertise
 - Secure Parking for Test Van

