Wireless@Virginia Tech

An ICTAS Cognition and Communication Center

Vision
The vision of Wireless@VT is to be a leader in wireless communications research through pioneering new technology domains.

Mission
Wireless@Virginia Tech is a comprehensive organization focused on wireless research to support our educational mission. Our missions are to perform leading edge research in wireless communications and to produce high caliber students as future leaders for academia, industry, and government.

Technical Approach
• Hands-On
• Building hardware, prototyping, system integration
• Relevant
• Knowledge of the impact of business and economic issues on system design, implementation, and integration
• Students are coached in oral and written communication skills, encouraged to interact with sponsors
• Multidisciplinary
• Economics, regulatory issues, electromagnetics, RF design, signal processing, networking, communication theory
• Entrepreneurial
• Pursue novel technical approaches
• Promote new opportunities and applications for commercialization
• Host Industry/Government Education through annual Symposium with hands-on workshops and half-day tutorials.
Virginia Tech Cognitive Radio Test Bed

World’s Smallest Ultra-wideband Antenna: Compact Ultra-wideband Antenna (CUA)

Capabilities and Accomplishments

• Designing, fabricating, and analyzing the next generation of antenna systems for wireless communications, and radio frequency identification.
• Trustworthy spectrum sharing in Software Defined Radios, and code verification, Cognitive Radio security vulnerabilities, GPS spoofing mitigation, and attack-resilient routing protocols for ad-hoc networks.
• Global modeling, information & decision support cyberinfrastructure (CI) that will provide scientists and engineers novel ways to study large complex socio-technical systems.
• Faster mitigation of narrowband interference using adaptive algorithms, robust suppression of impulsive noise in communication systems, transmit pre-coding for ultra-wideband systems, ranging systems for unloading ship cargo, and position location.
• On-orbit health monitoring and repair assessment of thermal protection systems, development of cell libraries to support VLSI research and education, and high isolation DC-contact lateral RF MEMS switches.
• Development of cognitive radio architectures and prototypes for public safety, dynamic spectrum allocation algorithm development, flexible cognitive engines, developing a flexible cognitive radio test bed, creating open source SCA development tools for rapid prototyping, and researching distributed computing for collaborative software radio.

Contact Information

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