



Center for Advanced Communications (CAC)

Villanova University

The Texas A&M University Center in Ergonomics has been assisting industry to improve its efficiency, competitiveness, productivity, and worker performance by preventing and controlling work-related cumulative trauma disorders

A National Science Foundation Industry/University Cooperative Research Center since 1992

Center Mission and Rationale

Since 1990, the Center for Advanced Communications has served companies driven by the needs to respond to competitive pressures, to reduce internal costs, to understand the technical complexity of innovation, to recruit smart students, and to access external sources of new knowledge and technology. The Center has provided an integrated environment in which academia, industry, and government can focus on wireless, mobile, and broadband communications.

Participating organizations can maximize knowledge exchange (access to new ideas, expertise, new technologies, and future employees) in the areas of wireless, mobile, and broadband communications. Specific member benefits include a position on the advisory board; access to reliable, relevant, and tailored R&D; interaction with professors; intellectual property rights; Center technology reports; access to Villanova laboratories; opportunities to evaluate Center students as future employees; access to new ideas and know-how; technical assistance from the Center; invitations to annual research review; use of library and informational resources; and use of conference facilities. This adds up to a collaborative partnership with a highly respected university partner.

Research Program

Wireless communications are becoming a preferred method of sending information anywhere in the world. Wireless systems have gone beyond radio, telephones, and television to include computer networks, merchandizing services, data systems, and personal communications devices. Advances in technology are making wireless communications easier, safer, higher quality, and less expensive every month. This rapid development of wireless technology is creating new opportunities and challenges for communication users and suppliers.

Without wires to impede mobility, today's cordless and cellular telephones provide the ultimate accessibility, convenience, and flexibility. In many applications, wireless telecommunications can eliminate the high costs of installing and maintaining traditional wired systems. Customized paging services provide instant access to up-to-the-minute information, while portable computing devices enable users to transport information wherever they go. Wireless services make even the most rural community accessible through communications.

The growing demand for access to information in any environment is shaping the future of wireless communications. To achieve the vision of truly mobile information, next-generation wireless services will provide higher voice quality, expanded coverage, seamless global roaming, high-speed data, and a full range of broadband multimedia services, including full-motion video, video conferencing, and Internet access. Additional services will include on-demand medical imaging, real-time road maps, and anytime, anywhere video conferencing. The design and deployment of next-generation systems will require new air interface technologies, multimedia-capable networking, and specifications that ensure that the new wireless infrastructure is both specific enough to deliver planned service and flexible enough to provide services that have not yet been conceived.

Special Center Activities

The Center has been a strategic partner of the National Science Foundation's Industry/University Cooperative Research Centers program since 1992.

The Center is also a strategic partner of the Ben Franklin Technology Partners of Southeastern Pennsylvania. The mission of the partners is to promote the economic competitiveness of small to medium-sized companies in the five-county region of Southeast Pennsylvania through innovation and technology. Under this program, the Center provides short-term services for small to medium-sized Pennsylvania companies using grant funding from the Ben Franklin Technology Partners.

The Center is a strategic partner of VTEL Corporation, a maker of Digital Visual Communications Products. Installed at the Center is a TC2000 Large Group full-multimedia conferencing system. The goals for the VTEL video conferencing system include reducing travel costs and increasing the frequency of face-to-face meetings with our sponsors; reducing development time and increasing productivity by increasing group interaction and collaboration; reducing decision-making time and increasing decision-making efficiency; and allowing technical information to be presented for group review/comment.

The Center is a strategic partner of the Department of Defense. The Center incorporates Defense Readiness into its specific wireless, mobile, and broadband communications research.

Center Headquarters

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