Beyond Silos: Integrating interdisciplinary research and education in the academy

The world stands at the threshold of an era of unprecedented and revolutionary advances in a few converging technologies which can create opportunities for new industries, robust job growth and enhanced human abilities. These technologies, identified by National Science Foundation as nanotechnology, biotechnology, information technology and cognitive science, are poised to unleash new understanding of matter from atomic scale to the complex working of human brain. However, the inherent complexity and power of these technologies require engineers and scientists to adopt multiple perspectives that are not confined to a single discipline. To this end, the academy must look beyond the conventional silo-based education and research and move to integrate interdisciplinary inquiry and approach in both the discovery and the learning domains. This talk will address some of these issues and make a case for interdisciplinary work as a source of innovative solutions to society's intractable problems. The talk will draw heavily from my personal journey in conducting and leading interdisciplinary research at AT&T-Bell Laboratories, the University of Colorado at Boulder and Virginia Tech.