

VISION and MISSION of the CISE department

PREAMBLE

1. The impact of CISE on the information-based society is ubiquitous. While the science of computing has been and continues to be a major enabling force for other disciplines via simulation, data access, communication protocols, etc., CISE is becoming critical to our understanding and modeling of societal, medical and biological processes and phenomena.
2. CISE has been and is at the core of US growth. This growth is represented by multi-billion dollar industries from Microsoft to Oracle to Google. The Department of Labor identifies that specialists in computing are and will be one of the fastest growing sections of the work force also after taking outsourcing into account.
3. The unique identity and central role of CISE is reflected in NSF creating a separate directorate: CISE is one of seven directorates, on par with, for example, Geosciences, Engineering and Mathematical-and-Physical Sciences. Separately, NSF has an Office of Cyberinfrastructure.
4. The interactions of CISE with other disciplines are rapidly evolving and changing and covers a wide range of other departments and colleges.
5. The CISE approach is different and complementary to the approach in those areas of ECE that are closest to CISE (communication and control, signal processing), and is as distant from the study of devices and power systems, as it is from mechanical and aerospace systems, civil and environmental systems or, chemical or biomedical engineering systems or, for that matter, systems occurring in nature.

VISION and MISSION

CISE, Computer and Information Science and Engineering, sees its future in a strong core identity that supports a growing diversity of flexible working groups, connecting it to partners throughout the academic spectrum, in the support of a broad range of interdisciplinary research.

The core identity, unique to its field, is a systematic, logical, and algorithmic approach to problems and systems that involve the computation, storage, and transfer of information, spanning the spectrum from theoretical foundations to practical techniques. CISE includes the design, analysis and application of algorithmic mechanisms, protocols and software down to high-level systems-architecture. For conceptual clarity and generality, these are purposefully separated from the idiosyncrasies of actual hardware level implementation. We are engineers because we pose practical problems and design efficient solutions. We are scientists because we explore the fundamental theoretical foundations of computing.

Cultivating this unique CISE core identity to sustain the central and expanding role of CISE is central for the key stake-holders: students, industry and faculty. A strong core identity is central for

1. students in that hiring patterns and ABET accreditation show that core CISE skills are critical for the educational mission,
2. industry, since feedback from the industrial advisory board, research donations and hiring events indicate demand for core CISE skills,
3. and faculty, since retaining CISE core identity is the best way to be visible from the outside and to function as a partner with its own identity in the rapidly changing landscape of interdisciplinary work.