Computer Science Research Across the College of Engineering

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What is Computer Science?

• The study of *algorithms*, including their
  – Formal and mathematical properties;
  – Hardware realizations;
  – Linguistic realizations;
  – Applications.

• The study of information, its representation, organization, manipulation, and transformation to accomplish some end.

• Study and design of computing systems.

• Study and design of automatable processes.
CS != Computing

• Computing-enabled research happens everywhere
• CS researchers collaborate with almost everyone
• CS research happens in many places
• In CS we directly study concepts and design systems that are only part of the research in other engineering fields.
An Example: Concurrency
CS Then and Now

• CS departments born out of Math, EE, Computing Center, ...

• Early research collaborations in scientific computing, modeling & simulation, information retrieval & database, human-computer interaction, etc.

• But now ...
  – Data deluge
  – Ubiquity and the internet of everything