Difference Between Computer Engineering, Software Engineering and Computer Science
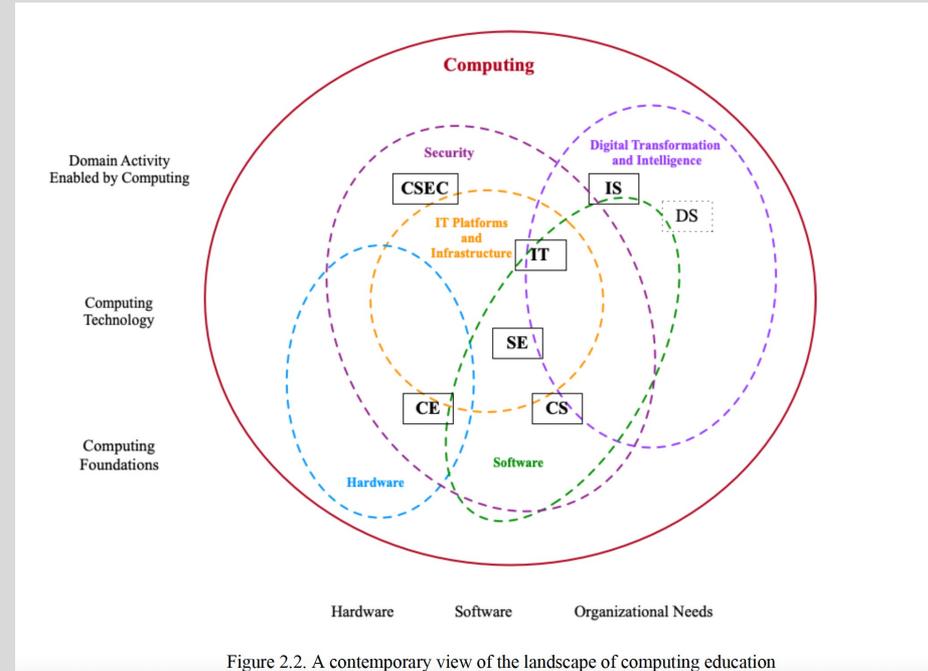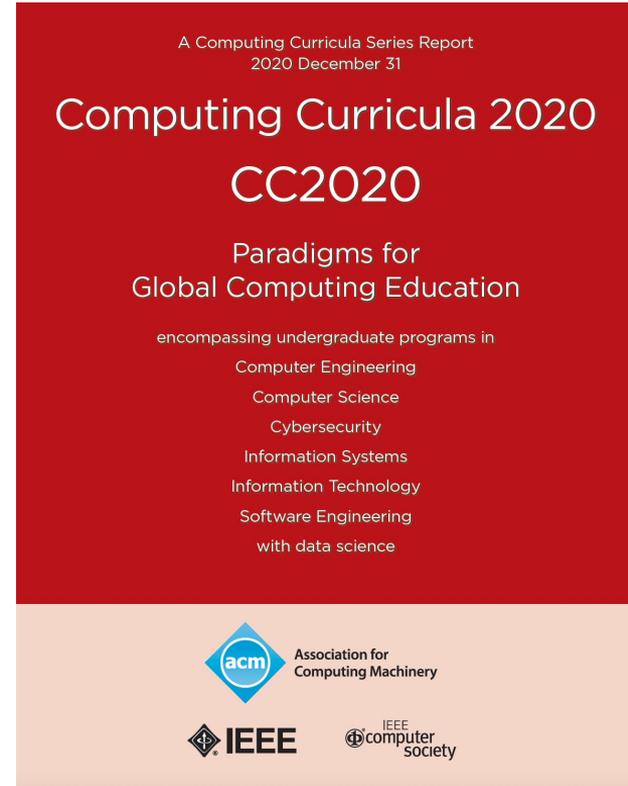
Philip Leong

Figure 2.2. A contemporary view of the landscape of computing education

Association for Computing Machinery View

- **ACM is main professional society for computing**
  - https://www.acm.org/binaries/content/assets/education/curricula-recommendations/cc2020.pdf

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Computing Curricula 2020

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Paradigms for
Global Computing Education

encompassing undergraduate programs in

Computer Engineering

Computer Science

Cybersecurity

Information Systems

Information Technology

Software Engineering

with data science

acm Association for Computing Machinery

IEEE   IEEE computer society
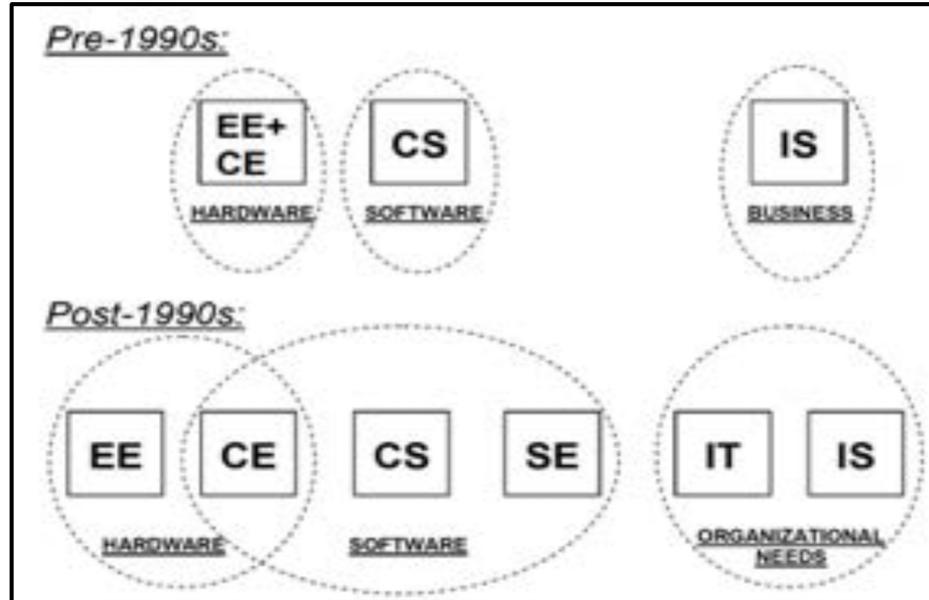
THE UNIVERSITY OF SYDNEY

Pre-1990 View

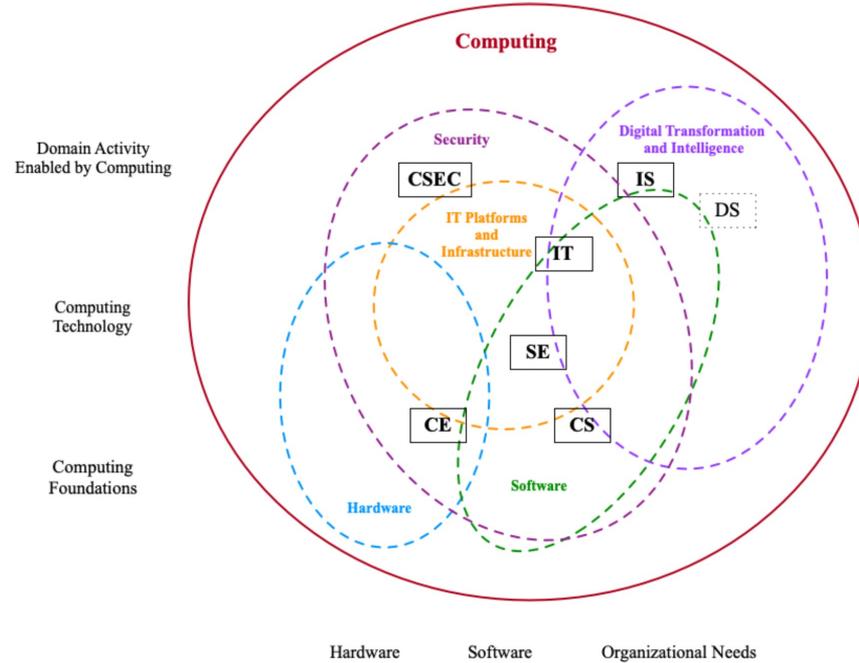Figure 2.1 Computing disciplines compared,
from CC2005

2020 View

Figure 2.2. A contemporary view of the landscape of computing education

CE Summary

– **Computer engineering (CE) brings together computing and electrical engineering in a way that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems, computer-controlled equipment, and networks of intelligent devices.**

CS Summary

- Because of its theoretical foundations, computer science is often viewed as a fundamental discipline. It is, however, at times erroneously equated with all of computing

- CS continues to have a more theoretical focus among the other computing disciplines, and its connection with abstract mathematics is still strong. … CS programs emphasize abstract computational capabilities

- CS2013 allocates about 40% of its core hours to algorithms and complexity, programming languages, software development fundamentals, and software engineering.

SE Summary

- **Software engineering (SE) is an engineering discipline that focuses on the development and use of rigorous methods for designing and constructing software artifacts that will reliably perform specified tasks**
- **See also "Software Engineering Programs Are Not Computer Science Programs"**

– **ACM is main professional society for computing**

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