Panel Comments

The role of visualization, data analysis & management

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SECANT Workshop

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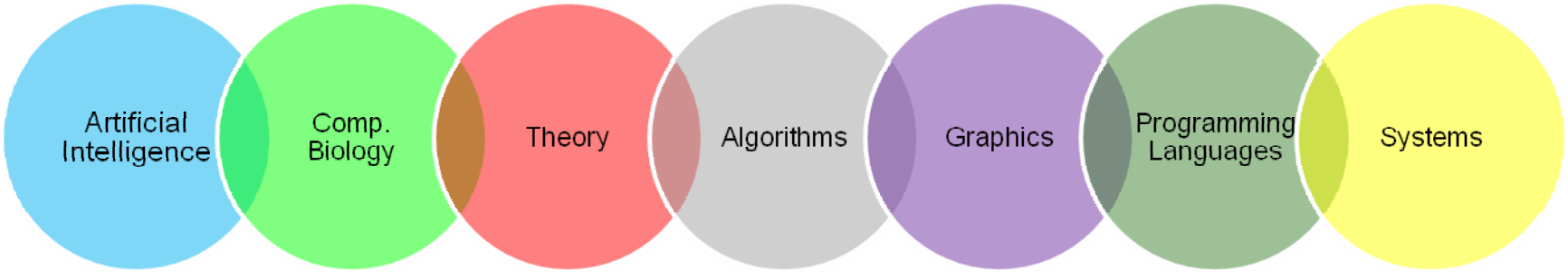
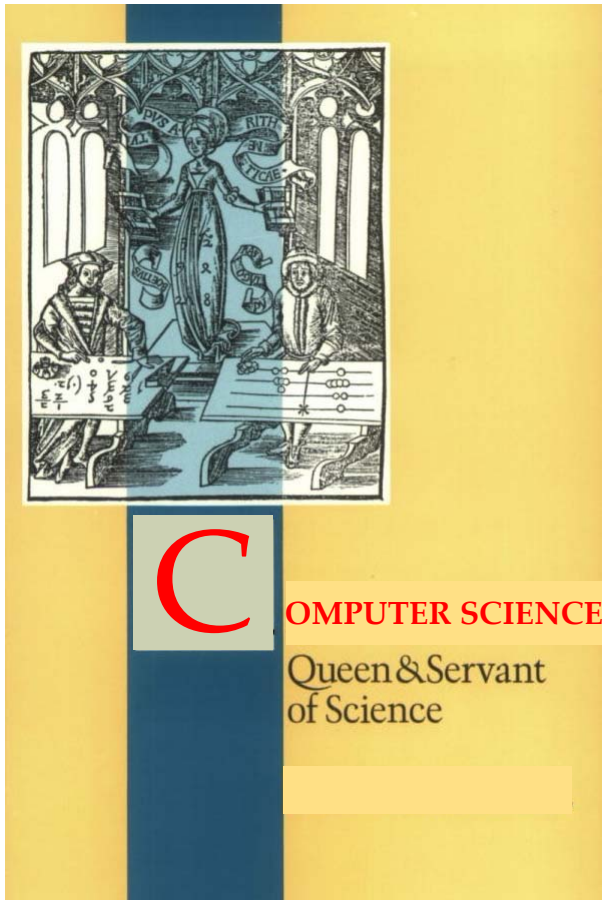
University of Wisconsin
SCHOOL OF MEDICINE
AND PUBLIC HEALTH
&
COMPUTER SCIENCES

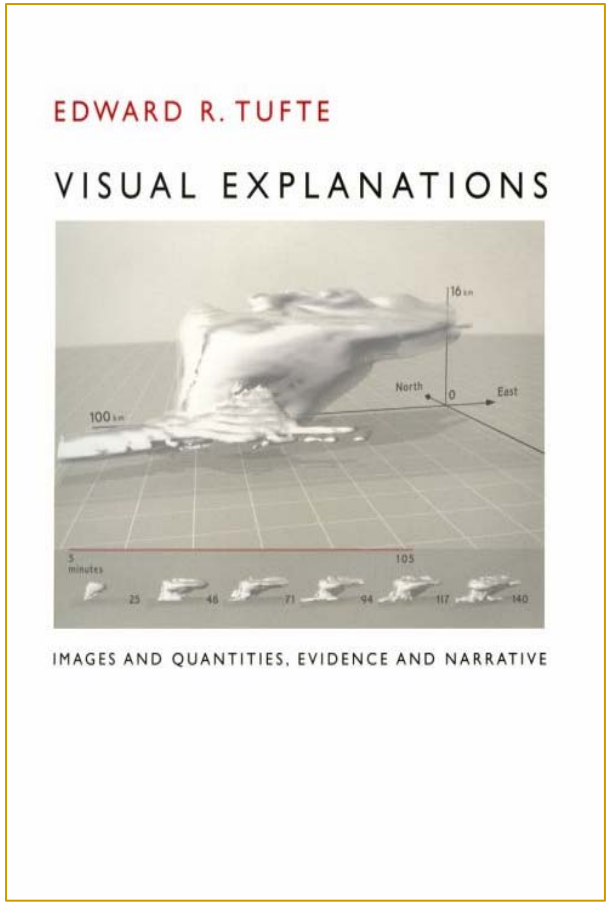
Modern computer science…





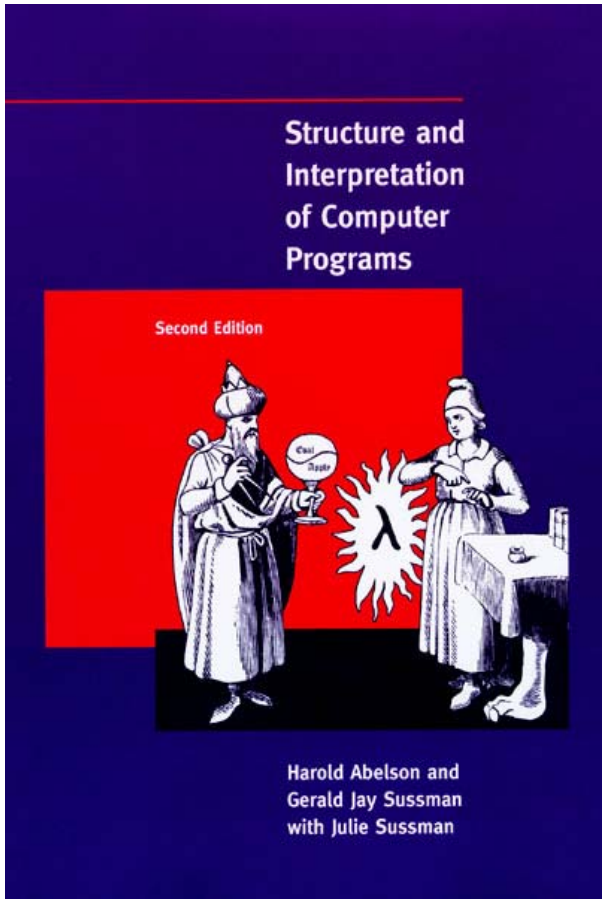
“Mathematics is the Queen of the Sciences and Arithmetic the Queen of Mathematics. She often condescends to render service to astronomy and other natural sciences, but under all circumstances the first place is her due.”

Carl Friedrich Gauss (~1856)



“Our thinking is filled with assessments of quantity, an approximate or exact sense of number, amount, size, scale. In scientific work, both order-of-magnitude reasoning and precise measurements are pervasive. How are such quantities represented in visual expressions of ideas, experience, evidence? … what makes images quantitatively eloquent?”

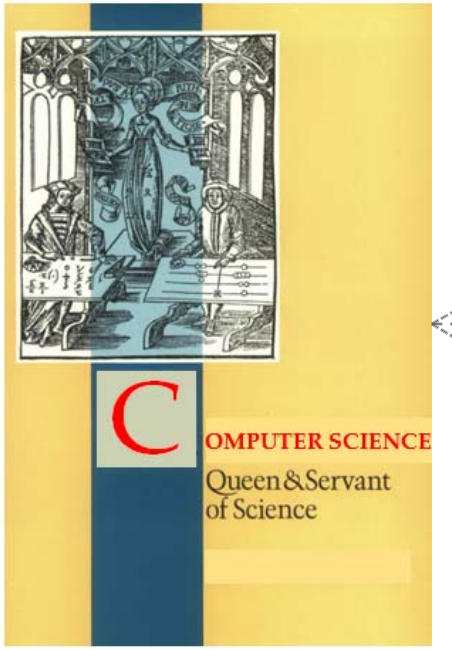
Edward Tufte (1997)



“The acts of the mind, wherein it exerts its power over simple ideas, are chiefly these three:
1. Combining several simple ideas into one compound one, and thus all complex ideas are made.
2. The second is bringing two ideas, whether simple or complex, together, and setting them by one another so as to take a view of them at once, without uniting them into one, by which it gets all its ideas of relations.
3. The third is separating them from all other ideas that accompany them in their real existence: this is called abstraction, and thus all its general ideas are made.”

John Locke, *An Essay Concerning Human Understanding* (1690)

Balancing computer science education


C
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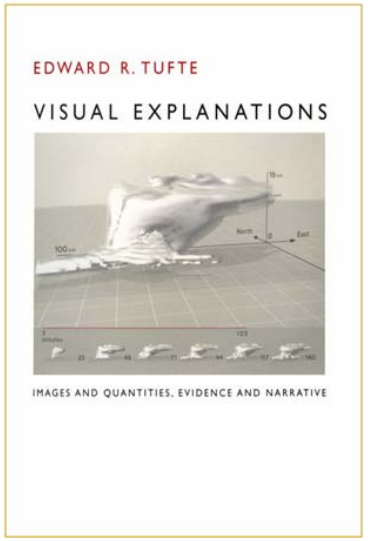
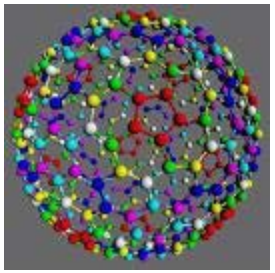
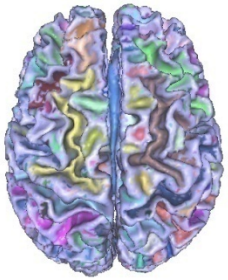
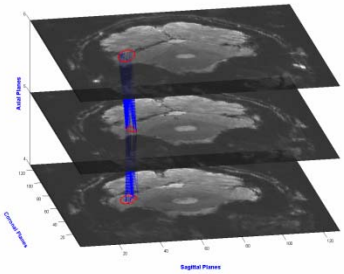
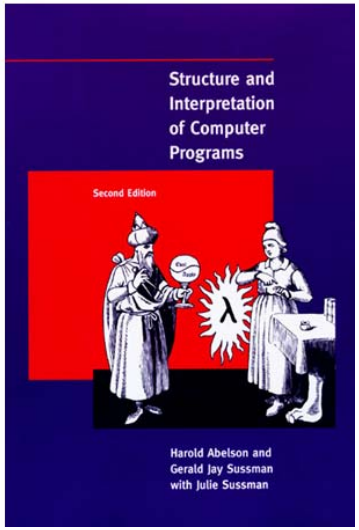
Queen&Servant
of Science

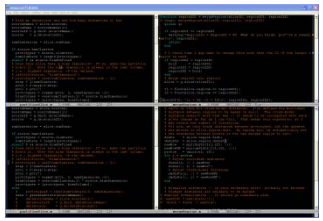

EDWARD R. TUFTE
VISUAL EXPLANATIONS
IMAGES AND QUANTITIES, EVIDENCE AND NARRATIVE

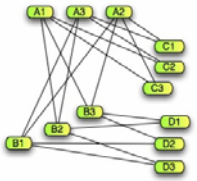
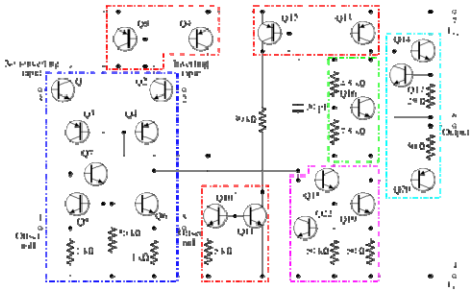







Structure and
Interpretation
of Computer
Programs
Second Edition
Harold Abelson and
Gerald Jay Sussman
with Julie Sussman

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