



PLANNING YOUR RESEARCH CAREER

JURIS HARTMANIS
CORNELL UNIVERSITY

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CONGRATULATIONS !

- CONGRATULATIONS ON CHOOSING A CAREER IN COMPUTER SCIENCE !



COMPUTER SCIENCE

- In about 50 years CS has grown in to a major science and has helped create the **Information Revolution**



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- NAE



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- Strong societal and cultural impact,



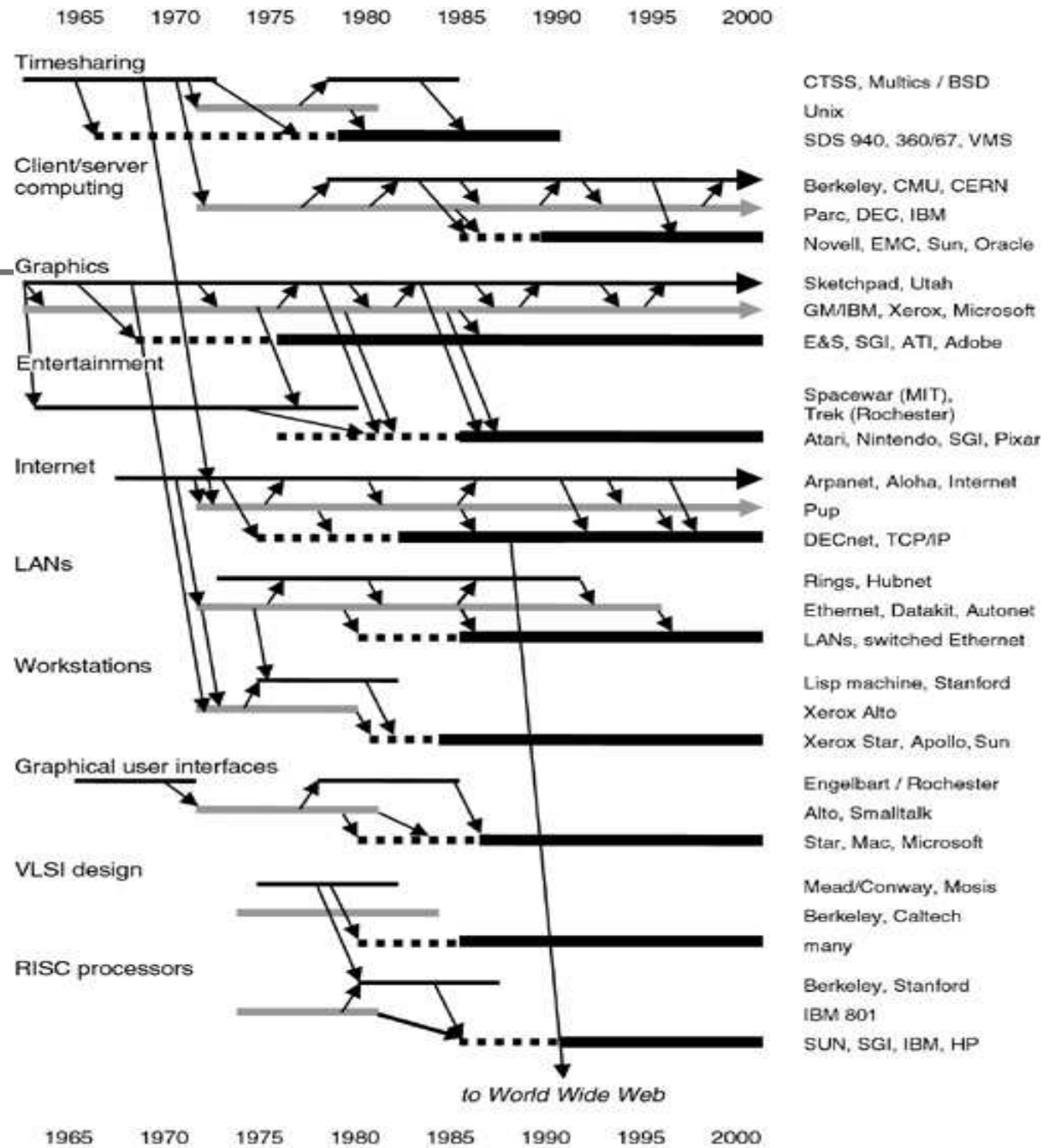
COMPUTER SCIENCE

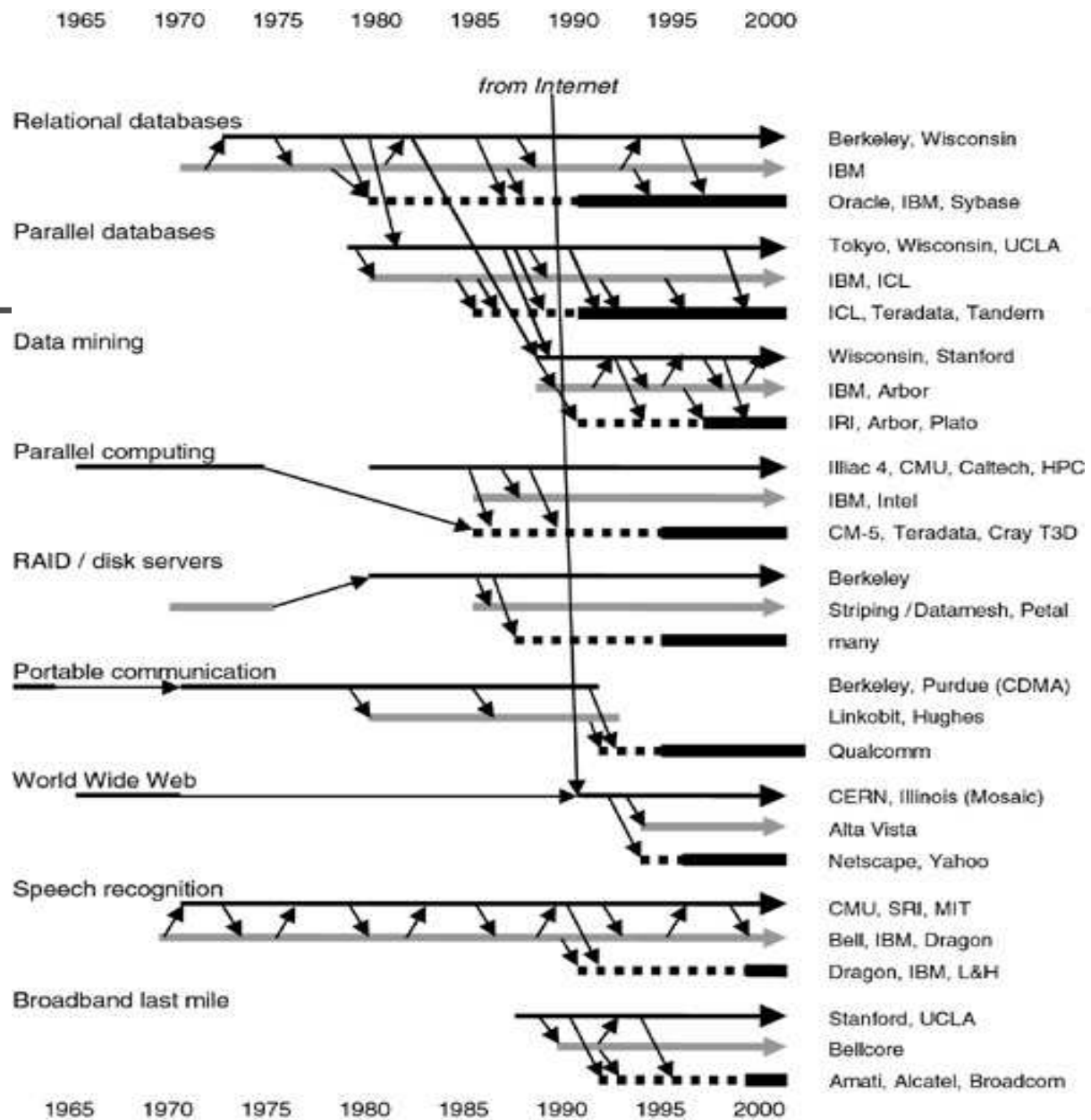
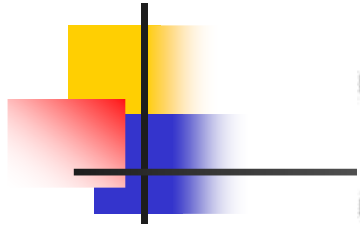
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COMPUTER SCIENCE

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- CS has made rich intellectual and practical contribution to computing and technology
- Strong societal and cultural impact,
- Growing intellectual impact on other sciences,
- Important economic contributions,
- Tire Track slide





University
 Industry research
 Products
 \$1B market

IT research areas are ordered roughly according to when they became \$1 billion industries.



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- Its research paradigms differ from the physical and biological sciences, yet we have a lot to learn from other sciences and contribute to them.



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- CS is concerned with automating intellectual processes
- The Industrial Revolution automated mechanical processes using physical materials, the Information Revolution automates intellectual processes using digital information



TO SUCCEED YOU MUST LIKE SCIENCE

- Soak up as much CS knowledge as you can and know as much science as possible, know more math (statistics).
- This is a continuing process !
- Seek inspiration from results and successes in CS and other sciences

Quantum mechanics and quantum computing



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- Aim for the first non-trivial result in a new area.



SCIENCE IS A PROCESS

- Science is a process, ever changing. So is research, thus there is a time line, a story to tell. Tell it, put it in temporal and intellectual context.
- Distill out the essence of the problem and solution and communicate in a broad CS framework.
- COMMUNICATE !



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- We are in a citation contest, do not be enslaved by it but respect it.



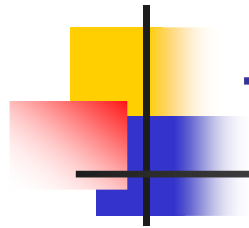
RECOMMENDATIONS

- Select some 10+ experts in and near your area of research and make sure they know about your research.
- They may have to write recommendations for you.



FOR INSPIRATION AND STIMULATION

- Keep up with developments in CS and your favorite science(s).
- Read biographies of scientists and history of science, CS and other sciences.



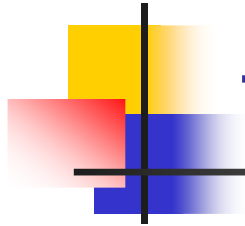
THE CREATIVE INTELLECTUAL PROCESS

- Professor Dilworth, first I will do the Analysis exam....



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- Allan Borodin ... (2008 CRM-Fields-PIMS Award....)



THE CREATIVE INTELLECTUAL PROCESS

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- Allan Borodin
- Jaques Hadamard, "The psychology of invention in the mathematical field"
- Preparation, Incubation, Illumination, Verification
- Hadamard: Prime number theorem, 1896



All THE BEST!!

- Good luck,
- Great results
- and generous citations !!