CS/EE 583
Visualizations of Papers/AUTHORS

Spring 2015, Prof. Martonosi
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The assignment was to create any visualization, either serious or funny. Before reusing anywhere, please contact me for each slide’s attribution names.
Papers by Research Location

- Arlington, VA
  - Cerf/Kahn (1/2)
- Berkeley, CA
  - RAID
  - Searle
- Cambridge, MA
  - SPACEWAR!
  - Multics
  - Liskov x 2
  - RSA
  - Shannon
  - Sketchpad
  - Valiant
- Cambridge, UK
  - Turing (Computability)
  - Wilkes
- Cork, Ireland
  - Boole
- La Jolla, CA (San Diego)
  - Back-Propagation (1/2)
- Manchester, UK
  - Kilburn
  - Turing (Imitation Game)
- Menlo Park, CA
  - Engelbart
  - Lamport x 2
- Mountain View, CA
  - Moore’s Law (retrospective)
- Murray Hill, NJ
  - UNIX
  - Shor’s Algorithm
- New York City, NY
  - FORTRAN
- Palo Alto, CA
  - Kay
  - Ethernet
  - Moore’s Law (original)
  - Weiser
- Philadelphia, PA
  - Hopper
- Pittsburgh, PA
  - Back-Propagation (1/2)
- Princeton, NJ
  - Burks
- Stanford, CA
  - Cryptography
  - PageRank
  - Cerf/Kahn (1/2)
- Washington, D.C.
  - Bush
Locations and Weights

- Cambridge, MA – 5
- Cambridge, UK – 1.5
- Cork, Ireland – 0.5
- La Jolla, CA – 0.25
- Manchester, UK – 1
- Murray Hill, NJ – 2
- New York, NY – 0.5
- Philadelphia, PA – 0.5
- Pittsburgh, PA – 0.25
- Princeton, NJ – 0.5
- Silicon Valley – 8.5
- Washington, D.C. Area – 1.5
If papers in this class were the focus of a departmental, which track would that course be counted as?
(Or, a visualization of why I can’t find my last theory course)
From Publication to Reception

Turing Award Winners Over Time

Barbara Liskov
Leslie Valiant
Leslie Lamport
Adleman, Rivest & Shamir
Ritchie & Thompson
Cerf & Khan
Alan Kay
Douglas Engelbart
Ivan Sutherland
John Backus
Maurice Wilkes

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<tr>
<th>Average gap</th>
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<tr>
<td>Longest gap</td>
<td>35 years (Lamport)</td>
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<tr>
<td>Shortest gap</td>
<td>9 years (Ritchie &amp; Thompson)</td>
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<tr>
<td>Biggest snub</td>
<td>Alan Turing</td>
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1930 —— 2014
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<th>East Coast</th>
<th>West Coast</th>
<th>UK</th>
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<tr>
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<td>Dennis, Thompson, Ritchie, Rivest, Shamir, Lamport, Shor</td>
<td>Cerf, Diffie, Hellman, Brin, Kay, Weiser</td>
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<tr>
<td>No Facial Hair</td>
<td>Shannon, Turing, Kahn, Von Neumann, Burks, Goldstine, Sutherland, Valiant, Hopper, Backus, Adleman, Liskov</td>
<td>Searle, Metcalf, Boggs, Katz, Patterson, Gibson, Engelbart, Hinton, Rumelhart, Moore, Page</td>
<td>Boole, Turing, Wilkes, Kilburn</td>
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</tbody>
</table>
Dan Kang
Syllabus Visualization: Birthplaces of the authors of the Great Moments papers
An Institutional Breakdown

Can you make money AND be Great?

West Coast Best Coast?

Change Over Time

Change Over Time
Great Insights
(what I call great moments)

Great Systems

Boolean Logic
Artificial Intelligence
PageRank
Computability
Shor’s Algorithm
Machine Learning
Consistency
Asymmetric Encryption

Great Trends

Data Abstraction
Ubiquitous Computing
Virtual Memory/Multics
Early Architectures
Compilers
Unix

Moore’s Law
Computer Games
TCP/IP
Ethernet
Sketchpad
RAID
Mouse

Ubiquitous Computing
How Many Pages Does It Take To Achieve Greatness?

- Mean: 9.65 pages
- Median: 9 pages
- Mode: 11 pages
- Stdev: 4.94 pages

- Yatin Manerkar
Cerf and Kahn: **BAD MATCH**

Ritchie and Thompson: Opposite qualities, good partners

Diffie and Hellman: **GREAT MATCH**!

RSA: R&S = Good match, R&A = **GREAT match**, S&A = **BAD MATCH**

Brin and Page: **GREAT MATCH**!
How Much Education Did Great Moments Take?

Number of Degrees Granted to the Great-Moment Authors

Berkeley 1 1 1 1 1 1 1 1 1
Stanford 1 1 1 1 1 1 1 1 1
MIT 1 1 1 1 1 1 1 1 1
Princeton 1 1 1 1 1 1 1 1 1
Michigan 1 1 1 1 1 1 1 1 1
Cambridge 1 1 1 1 1 1 1 1 1
Harvard 1 1 1 1 1 1 1 1 1
UCLA 1 1 1 1 1 1 1 1 1
Caltech 1 1 1 1 1 1 1 1 1
Chicago 1 1 1 1 1 1 1 1 1
Budapest 1 1 1 1 1 1 1 1 1
Yale 1 1 1 1 1 1 1 1 1
Oxford 1 1 1 1 1 1 1 1 1
Tufts 1 1 1 1 1 1 1 1 1
Manchester 1 1 1 1 1 1 1 1 1
Weizmann Institute 1 1 1 1 1 1 1 1 1
Brandeis 1 1 1 1 1 1 1 1 1
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Wisconsin 1 1 1 1 1 1 1 1 1
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NYU 1 1 1 1 1 1 1 1 1
Oregon State 1 1 1 1 1 1 1 1 1
Vassar 1 1 1 1 1 1 1 1 1
City College of NY 1 1 1 1 1 1 1 1 1
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South Dakota 1 1 1 1 1 1 1 1 1
Colorado 1 1 1 1 1 1 1 1 1
Columbia 1 1 1 1 1 1 1 1 1
Warwick 1 1 1 1 1 1 1 1 1

# of Degrees Granted

Amount of Studies Required to Produce All Great Moments We Learned.

Amount of Studies to Produce one Great Moment
The awards are ACM Fellow (FACM), IEEE Fellow, Turing Award, Member of the American Academy of Arts and Sciences (AAAS), Member of the National Academy of Engineering (NAE) and National Medal of Technology (NMT). Some authors (Boole, Turing, Von Neumann) lived before these awards were established. The total number of authors is 35.

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<th>Name</th>
<th>FACM</th>
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Computer Scientists: Dead or Alive?

Dead
- Boole
- Burks
- Wilkes
- Engelbart
- Bush
- Shannon
- Rumelhart
- Kilburn

Alive
- Brand
- Boggs
- Hellman
- Shor
- Kay
- Cerf
- Page
- Liskov
- Patterson
- Moore
- Kahn
- Diffie
- Lamport
- Rivest
- Adleman
- Sutherland
- Metcalfe
What does Google say - How characters need to be typed when the full name suggestion pops up

Horizontal axis title