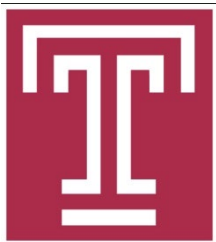


# Balancing Teaching, Research, Service, and Administration

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# Road Map

- Introduction
- Personal Experience
- Teaching
- Research
- Service
- Administration
- Conclusion



# Introduction

- Teaching (T), Research (R), Service (S), and Administration (A)
  - What is expected of you
  - Reevaluate periodically (e.g., yearly)
- Time allocation in career path

T:30	R:60
S:10	A:0

T:20	R:50
S:20	A:10

...

T:10	R:30
S:10	A:50

→ time

# Personal Experience

- "Poor" education

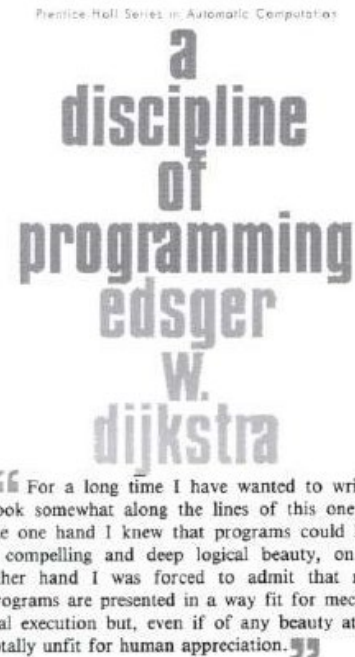
- 3 years of middle school (1975-78)
- BS/MS, Shanghai U. of Sci. & Tech. (SUST), 1982/1985
- PhD, Florida Atlantic University (FAU), 1989

- "Small" school experience

- SUST (1985), FAU (1989), Temple U. (2009)

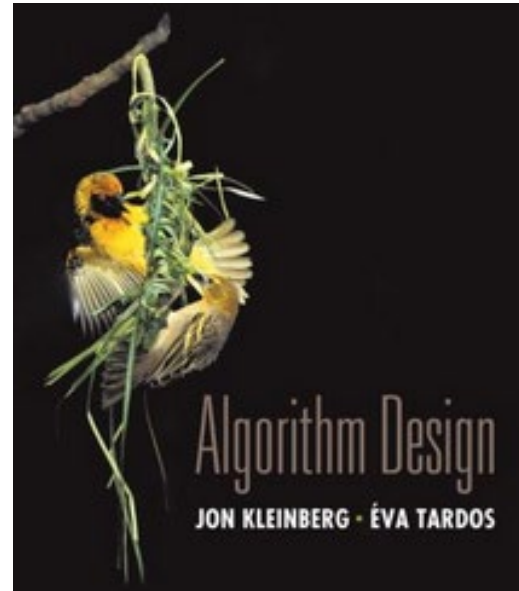
- "First"

- Programming language: Algol 60 (1976)
- English book: *A Discipline of Programming* (1982)
- Class taught: Pascal (1985)



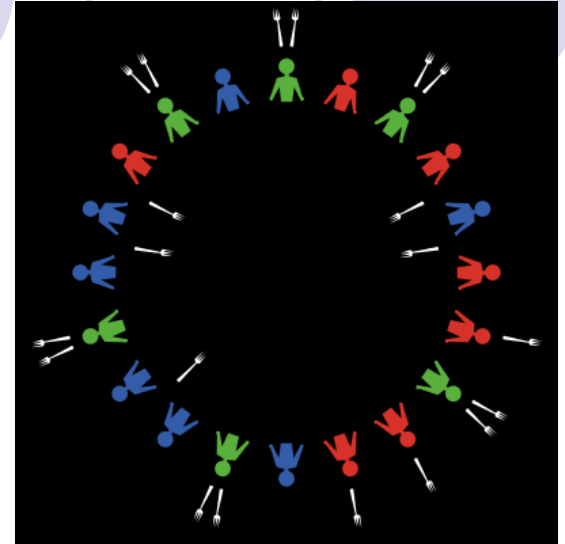
# Teaching

- High-quality learning experience
  - Professor
  - Students
- Depth and breadth
  - Research areas
  - General topics
- Teaching and research relationship
  - Start teaching early in your career



# Teaching Can Be Fun

- Algorithm: seating problem
  - Several couples are seated in a round table. Each neighbor of person A should be of the same gender of A or the spouse of A.

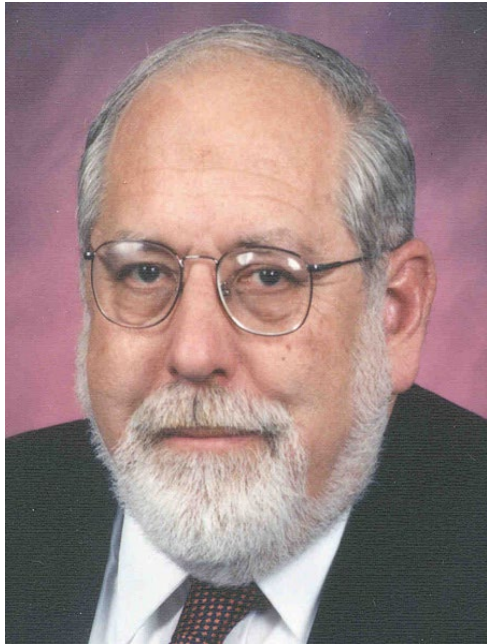


hhhhwwww, hhwwhhww, hwwhwwhh, hwhwhwhw

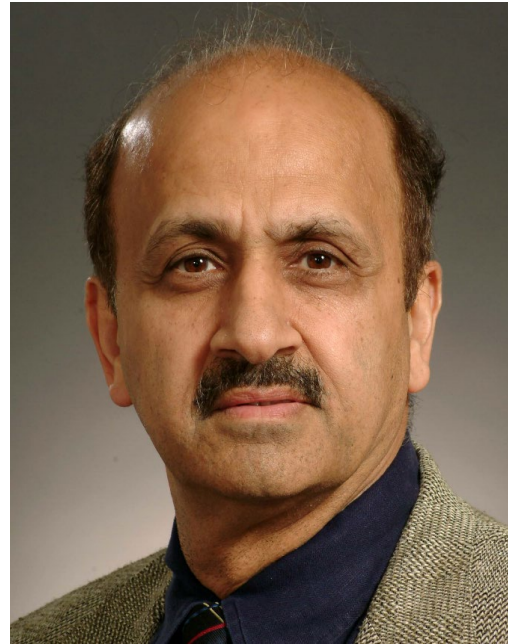
- Write a program that can quickly generate all “legal” streams
- Results in a paper and an international research collaboration

# Scholar: A Serious Teacher

- Ken Batchner



- Sartaj Sahni



# Research



- Important decisions
  - Publication vs. grant
  - Individual research vs. collaborative research
  - Quantity vs. quality
- CRA recommendation: quality and impact
  - Top 3 to 5 publications
  - Extended h-index?
  - How to measure intangible quality?
- Quality comes from quantity
  - Analogy: leaves and flowers
  - Mozart and Beethoven: high quan. & high qual.
  - Orff (Carmina Burana) and Holst (Planets): low quan. & high qual.



# Research Quality

- Originality

- Balancing reading literature and writing your own paper(s)

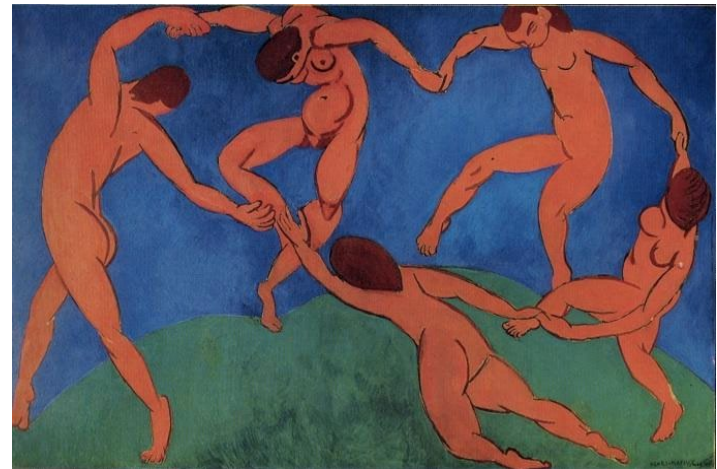
- Learn from artists

- Abstraction + imagination



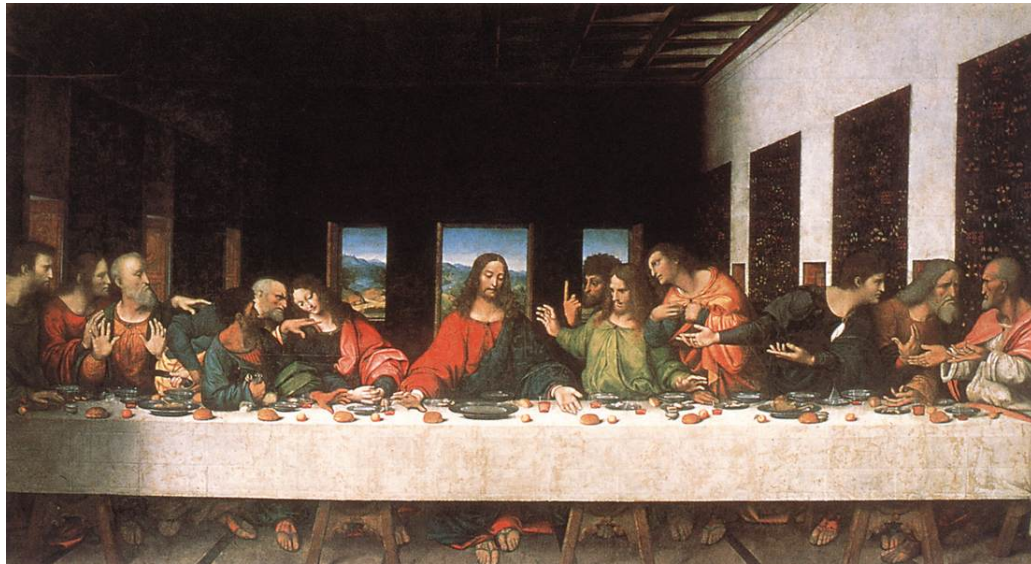
*High Impact Paper*

*Low Impact Paper*



# Abstraction and Imagination

- Fibonacci seq. ( $F_i = F_{i-1} + F_{i-2}$ , 1, 2, 3, 5, 8, 13,...)
  - 2, 4, 6, 10, 16, 26, 42,...
  - 4, 8, 12, 20, 32, 54, 86,...
  - 8, 16, 24, 40, 64, 104, 168, ...
- Fibonacci seq. in Last Supper



# Research Can Be Fun

## Mobile computing: cost optimization

**Problem:** The Washington, DC subway system charges fees based on travelling distance. For example, a passenger enters station A, stays there for X (say, 10) hours, and exits station B. The charge is proportional to the distance between A and B and is irrelevant to X.

- What are the potential flaws? Provide possible solutions.
- What happen if X is limited to 4 hours as in Nanjing, P. R. China?



A

1, 2 (in)

1 (out)

1 (in)

1 (out)

1 (in)

B

2 (out)

2 (in)

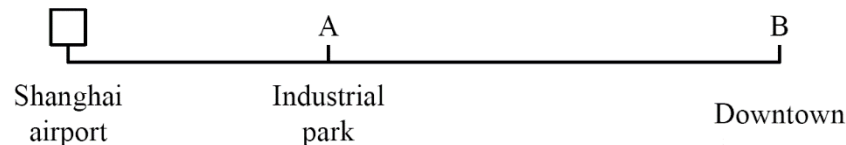
2 (out)

2 (in)

# Research Can Be Fun (con't)

**Problem:** At the Shanghai int'l airport, taxi drivers have to wait for at least 4 hours. It is unfair to a driver if a passenger's destination is the Industrial Park, which is about 20 minutes away. Others will go to downtown, which is 50 minutes away.

- Find a solution so that the interests of both the drivers and the customers are protected.
- Find potential flaws with the current solution at the Shanghai International Airport.



# Service

- Internal vs. external
  - Department, college, university
  - Reviewer, TPC, panelist, editor, invited speaker
- External larger role
  - Conference GC and PC
  - Journal EIC
  - PDs in various agencies
  - Major roles in IEEE/ACM

- How to choose?
  - Personal taste/judgement
- General rule
  - Assis. professor (<35): department and limited external
  - Asso. professor (<40): college and external
  - Full professor (>40): university and larger role

# Service Can Be Fun

- NSF PD
  - Task/time management
  - Mobilizing the community
  - Teamwork
- GC and TC
  - Optimal resource allocation
  - Best service with limited resources
  - Balancing quality (paper) and quantity (revenue)
  - Coordinating various chairs
- IEEE HPCA '99
  - Hotel selection
- NSF NeTS PI meeting '07
  - Effective program
- IEEE IPDPS '08
  - Keynote selection
- IEEE INFOCOM '11
  - Devils in details
- IEEE ICDCS '13
  - Dealing with the hotel
- ACM MobiHoc '14
  - Restaurant selection

# Administration

- Graduate PD
- Assoc/Vice Chair
- Chair
- Assis/Assoc/Vice Dean
- Dean
  - College, Graduate, Undergraduate, ...
- Assis/Assoc/Vice Provost and President
  - Research, Faculty Affairs, CIO, Int'l Affairs, ...

- Provost
- President
- Faculty vs. Administration
  - Most faculty felt that relationships are fair or poor
  - Less than 5% of faculty felt that they were influential

# Administration (con't)

- Importance of being a chair
  - Shape-up department direction
  - General starts from a solidier (e.g., chair)
- Most important function of a chair
  - Faculty recruitment
  - Secure resources
- Qualities
  - Vision
  - Knowledge
  - Commitment
  - Grit
  - Responsiveness
  - Fairness
  - Efficiency
  - Communication
  - Priority setting
  - Judgment
  - ...



# Becoming A Good Administrator

- Music director in an orchestra
  - Sum of all its musicians
- Manager of a football team
  - Former MU manager: Sir Alex Ferguson



# Administration Can Be Fun

- Best approximation  
(in impossible crises)
  - Judgment
  - Timing
- Mechanism design
  - Tie-in individual interests with societal (departmental) interests
- Case: Trust management
  - Direct trust
  - Indirect trust
- Case: TA assignment
  - Matching with a credit system and a slide window



# Additional Note

- Nothing can replace
  - Hard work
- Dealing with new “task/opportunity”
  - Prioritize tasks
  - Leave some room
  - Important vs. emergent
  - Optimize online/offline schedule

- How to get more time
  - Less sleep
    - More exercise
  - Parallelism
    - Quick content switch



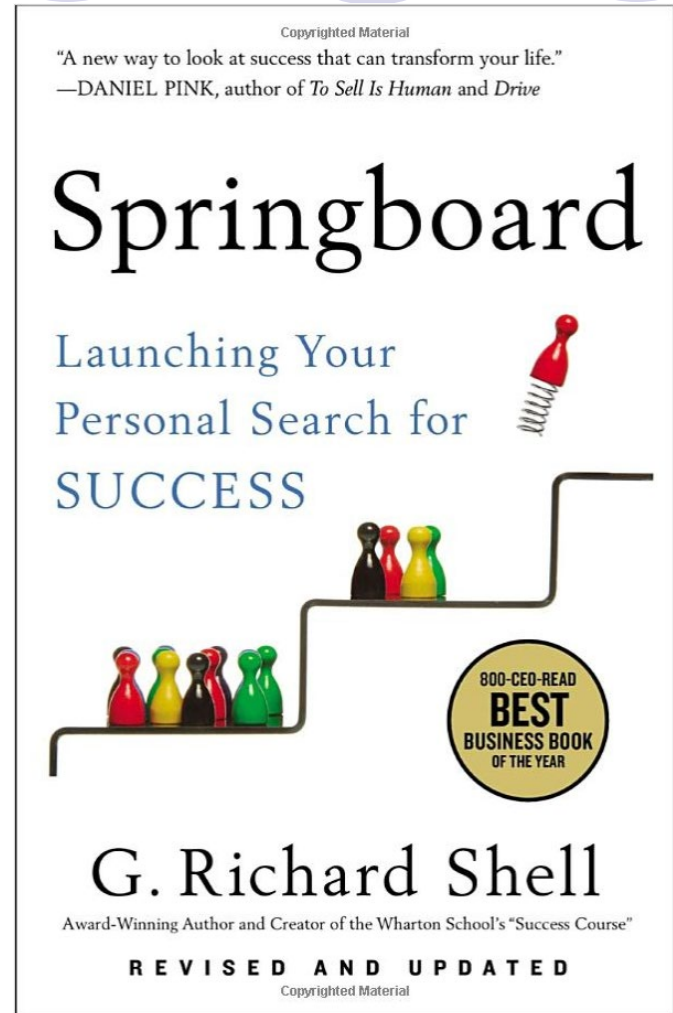
# Balancing the Big Picture

## Success

- Outer achievements
- Inner satisfaction/fulfillment

## Science and humanism

- Case: Attending a conference
  - Experience local culture (e.g. food) and shopping
  - Visit museums and attend a concert or sporting event



# Success vs. Happiness

## Success ≠ Happiness

- Meaningful work, love, and good health

## Levels of happiness

- Momentary (avoiding happiness dream)
- Overall (be aware of expectation gap)
- Spiritual (serving a purpose larger than yourself)

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Things Undone

Lin Yutang

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# Conclusion

- Assistant professor
  - $T + R + S$
- Associate professor
  - $T + R + S$
- Full professor
  - $T + R + S + A$
- Chair
  - $T + R + S + A$
- Dean (and up)
  - $S + A$



# Conclusion (cont'd)

- Quality, style, and taste
  - Show passion and enjoy what you do
  - Do not cut corners
    - "You can fool all the people some of the time; you fool some of the people all the time; but you can't fool all the people all the time."
- Balancing the big picture
  - Career, family, and health



# Future Events in Philadelphia



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## CALL FOR PAPERS

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## 2016 International Conference on Parallel Processing (ICPP-2016)

<http://www.kkant.net/icpp2016>

Philadelphia, PA August 16-19, 2016

### Sponsored by

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### Scope

Parallel and distributed computing is a central topic in science, engineering and society. ICPP, the International Conference on Parallel Processing, provides a forum for engineers and scientists in academia, industry and government to present their latest research findings in all aspects of parallel and distributed computing. ICPP 2016 will be organized around the following tracks:

- Algorithms
- Data Center & Cloud Computing
- Applications
- IO, Storage & File Systems
- Computer Architecture
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- Cyberphysical Systems
- Programming Models & Languages

### Paper Submission

Paper submissions should be formatted according to the IEEE standard double-column format with a font size 10 pt or larger. Each paper is strictly limited to 10 pages in length. Submissions should represent original, substantive research results. See the conference website for electronic paper submission instructions.

### Important Dates

Paper Submission Deadline	<b>February 26, 2016</b>
Author Notification	<b>May 06, 2016</b>
Final Manuscript Due	<b>June 03, 2016</b>

### Workshops

Workshops with more focused scope will be held on Aug 16. Proposals should be submitted to Pavan Balaji ([balaji@anl.gov](mailto:balaji@anl.gov)) and Anne Benoit ([Anne.Benoit@ens-lyon.fr](mailto:Anne.Benoit@ens-lyon.fr)) by Oct 16, 2015

### Proceedings

Proceedings of the conference and workshops will be available on CD or USB at the conference and will be submitted to IEEE Xplore and CSDL.

### Further Information

Please contact Jie Wu ([jiewu@temple.edu](mailto:jiewu@temple.edu)), Krishna Kant ([kkant@temple.edu](mailto:kkant@temple.edu)), or Hong Jiang ([jiang@cse.unl.edu](mailto:jiang@cse.unl.edu))



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- Security metrics and performance evaluation
- Security and privacy for big data
- Security and privacy in body area networks
- Security and privacy in content delivery network
- Security and privacy in cloud computing and federated cloud
- Security and privacy in crowdsourcing
- Security and privacy in the Internet of Things
- Security and privacy in multi-hop wireless networks: ad hoc, mesh, sensor, vehicular and RFID networks
- Security and privacy in peer-to-peer networks and overlay networks
- Security and privacy in single-hop wireless networks: Wi-Fi, Wi-Max
- Security and privacy in smart grid, cognitive radio networks, and disruption/delay tolerant networks
- Security and privacy in social networks
- Security and privacy in pervasive and ubiquitous computing
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Notification Date: 1 July 2016

Final Paper: 13 July 2016

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