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
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

“First”
- Programming language: Algol 60 (1976)
- 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.

  hhhwww, hhwwhhww, hwwhwwhh, hwhwhwhh

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

- Ken Batcher
- Sartaj Sahni
Research

- Important decisions
  - Publication vs. grant
  - Individual research vs. collaborative research
  - Quantity vs. quality

- CRA recommendation: *quantify 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](image1)
![Low Impact Paper](image2)
Abstraction and Imagination

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

- Fibonacci seq. in Last Supper
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 happens if X is limited to 4 hours as in Nanjing, P. R. China?
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
- Asis. 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

Almost no Chinese as provost and president in Carnegie R1 universities
Administration (con’t)

- Importance of being a chair
  - Shape-up department direction
  - General starts from a solider (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
  - ...

○ Faculty recruitment
○ Secure resources
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

- Case: Trust management
  - Direct trust
  - Indirect trust

- Mechanism design
  - Tie-in individual interests with societal (departmental) interests

- 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)
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

CALL FOR PAPERS
- The 45th Annual Conference -
2016 International Conference on Parallel Processing (ICPP-2016)
http://www.ikkant.net/icpp2016
Philadelphia, PA August 16-19, 2016

Sponsored by
The International Association for Computers and Communications (IACC)
In cooperation with
Temple University, Philadelphia, PA

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
- Performance, Reliability, Dependability
- 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: February 26, 2016
Final Manuscript Due: June 03, 2016

Call for Papers
- International Conference on Communication and Network Security (CNS)
- IEEE Conference on Cloud, Data Science, and Engineering (CDE)

Keywords
Cloud computing, distributed computing, parallel processing, security, privacy, dependability.