Research as a Career

Jeanne Ferrante, UCSD
Ronitt Rubinfeld, NEC
Victoria Stavridou, SRI
Background: Jeanne Ferrante

- Ph.D. Math., MIT, 1974
- Assistant Professor, Math., Tufts 1974-78
- IBM T. J. Watson Research Center, 1978-94
  - Transition from theory to compilers
  - Projects
    - Experimental Compiler System
    - PTRAN: parallelism
- Professor, CSE, UCSD, 1994-present
  - Memory Hierarchy
  - Runtime and compiler optimizations for performance
Background: Ronitt Rubinfeld

- Ph.D., U.C. Berkeley, 1990
- Postdocs
  - DIMACS (Princeton), 1990-1991
  - Hebrew University, 1991-1992
- Cornell
  - Assistant Professor, 1992-1998
  - Associate Professor, 1998-2000
- Visiting positions:
  - MIT 1995-1996
  - IBM Almaden 1998-1999
- Senior Research Scientist, NEC Research Institute 1999-present
Background: Victoria Stavridou

- Ph.D. CompSci, University of Manchester, UK
- Various university research positions
- Lecturer, CS, Royal Holloway College, University of London, 1988 – 1995
- Reader, CS, Queen Mary College, University of London, 1996 – 1998
- Director, System Design Lab, SRI International, 1998 – present
- Term rewriting, hardware verification, safety critical systems, information security, software engineering
Research Management: Ferrante

- Usually no explicit training
- Change this! Get your students to
  - Manage an undergraduate research student
  - Write a major part of a grant proposal
  - Organize seminars
  - Manage a small pot of money
  - Make a plan for their future

- Lessons:
  - Good time management, organization
  - Planning important: set priorities, evaluate infrastructures
  - Each student is unique
Getting the most out of your graduate students:

- Only take good ones – how do you get them?
- How do you come up with a good problem?
  - Try lots of them
  - Learn from other areas/researchers
  - Remember the basics
- Treat them like colleagues
- Inspire and encourage
Managing research programs
- Understand your client
- Concept definition and positioning
- Need Approach Benefits Competition
- Iterate, iterate, iterate
- Stay the course and deliver

Managing research groups
- Choose people wisely
- Keep them involved in research planning and execution
- Trust them

Managing research organizations
- Research skills and reputation are musts
- Help your people be as successful as they can be
- Be honest downwards and upwards
- Demand excellence
Making Transitions: Ferrante

● Industrial research lab
  ● Colleagues, few students, no grants, company concerns

● University
  ● More multitasking: teaching, service, advising graduate students, grants

● Lessons:
  ● Keep your flexibility
  ● Mentoring helps
  ● Scale matters
Making Transitions: Rubinfeld

- University → Basic research lab
  - Keep your PhD students
  - Work with summer interns, postdocs, colleagues, visitors

- Basic research lab → Research lab
  - Find problems that you are interested in
  - Spend a lot of time talking to management
Making Transitions: Stavridou

- University → University
  - Do not underestimate the disruption
  - Try and keep your PhD students, lab etc
  - Do not take continuity for granted!

- University → Research Institute
  - More time for research
  - Explore multidisciplinary connections
  - Build large teams
  - Influence your clients
Making a Name for Yourself: Ferrante

- Make a plan
  - Talks, trips, program committees, conference activities, awards…
- Mentoring helps
- Network, network, network
- The joys of successful students
- Trend towards large-scale collaborations
- Don’t be afraid to lead!
Making a Name for Yourself: Rubinfeld

- Talk tours
  - 1 and 3 years before coming up for tenure
  - Make sure it is polished
- Invite colleagues to give talks
- Your students
- Organize a workshop
Making a Name for Yourself: Stavridou

- Don’t be a shy violet
- Put yourself forward for community service
- Give seminars
- Attend conferences and workshops
- Continuously expand your network
- Organize meetings, seminars and conferences
- Participate in program committees
- Write in popular journals and offer special editions
- Take the initiative and stand in front of people with your ideas