Carnegie Mellon University

Funding Your Research Program

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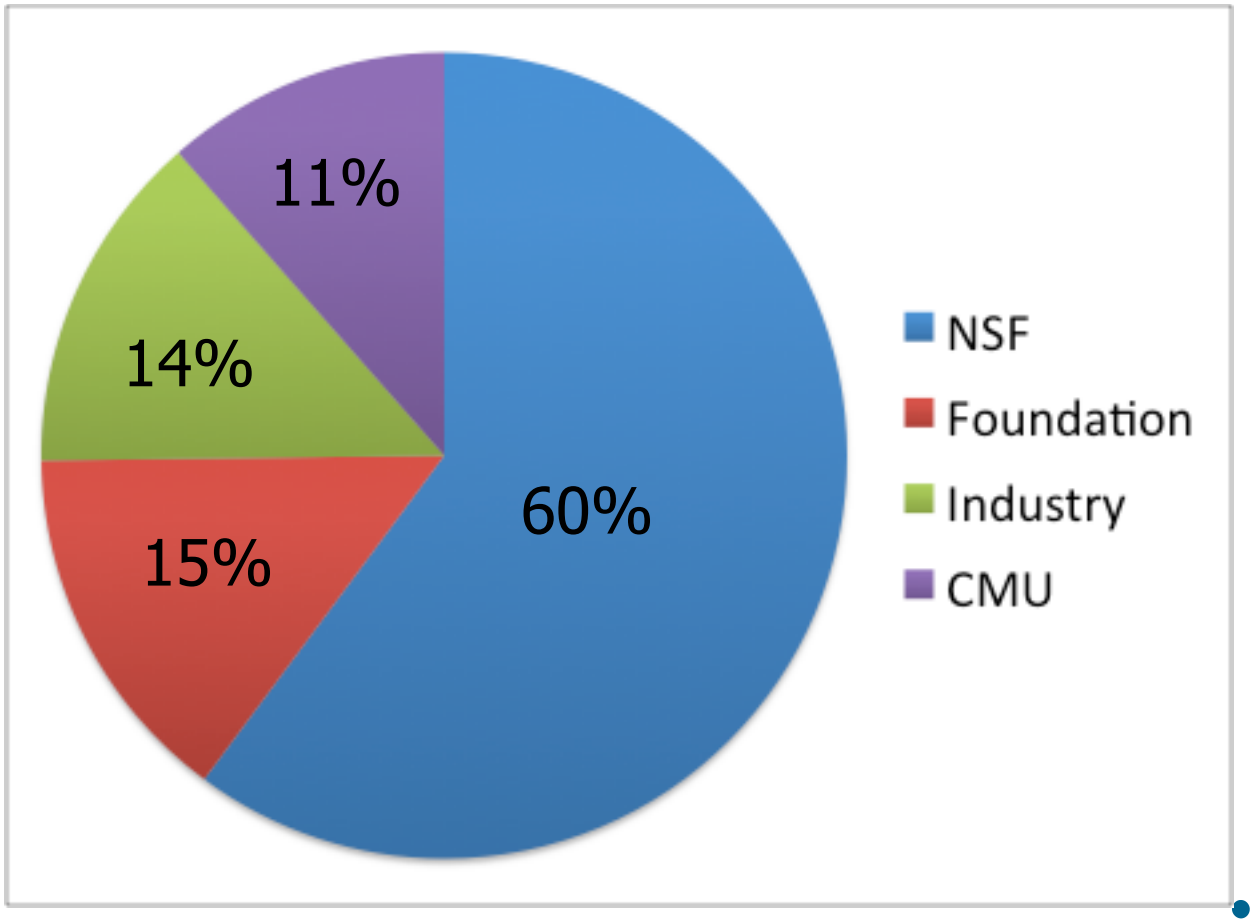
Where to Start?

How to Think About Funding

- For many of us, the single most bothersome worry in a job that's mostly great
- General advice
  - Look to fund your agenda, don't chase dollars
  - See proposal-writing as an opportunity
    - Think new thoughts
    - Form new collaborations
  - Keep a diverse portfolio

My Portfolio



A Bit of Planning is Helpful …

- How many students do you want?
- Basic funding unit
  - 1 graduate student
  - 1 month of faculty time
  - Travel to conference for both
  - University share

A Bit of Planning is Helpful …

Federal Grants (NSF)

- NSF decision-makers have two masters:
  - Your peers
  - Congress
  - Consider your “Rose Garden speech”
  - Use documents setting out federal priorities
    - NITRD
    - PCAST report

Federal Grants (NSF)

- Find your programs
- Study abstracts of recent awards
- Serve on a review panel
- Attend briefings where possible
- For new areas, find workshops

National Science Foundation
WHERE DISCOVERIES BEGIN

Cyber-Physical Systems

October 16-17, 2006

Home
Organizers
Position Papers
Schedule & Presentations
Working Groups
Registrants
Planning Meeting
Sister Workshops
Original Call for Papers
Hotel Info

Workshop concluded! Please click below or on the left frame for more information.

Presentations

Position Papers

Invited Registrants

Working Groups

Sister Workshops

Cyber-physical systems will transform how we interact with the physical world just like the Internet transformed how we interact with one another.

Welcome to the home-page of the proposed NSF research initiative on Cyber-Physical Systems.

The research initiative on Cyber-Physical Systems seeks new scientific foundations and technologies to enable the rapid and reliable development and integration of computer- and information-centric physical and engineered systems. The goal of the initiative is to usher in a new generation of engineered systems that are highly dependable, efficiently produced, and capable of advanced performance in information, computation, communication, and control.

Applications for cyber-physical systems can be found in health care (assisted living, bionics, wearable devices, …), transportation and automotive networks, aerospace and avionics, automated manufacturing, blackout-free electricity generation and distribution, optimization of energy consumption in buildings and vehicles, critical infrastructure monitoring, disaster response, efficient agriculture, environmental science, and personal fitness. Sensing and manipulation of the physical world occurs locally, while control and observability are enabled safely, securely, reliably and in real-time across a virtual network. This capability is referred to as "*Globally Virtual, Locally Physical*".

An NSF Workshop on Cyber-Physical Systems was held on October 16 and 17 in **Austin, Texas**. Position papers have been received (see Call for Position Papers). The workshop slides can be seen at Presentations.

Federal Grants (NSF)

- Find your programs
- Study abstracts of recent awards
- Serve on a panel
- Attend briefings where possible
- For new areas, find workshops
- If necessary, be sure to sell the problem first
- Lead on some proposals, follow on others
- Pursue CAREER award if possible

CAREER Award

Foundations

- Sloan, MacArthur, Heinz, etc., etc.
- Study foundation programs, materials, web site, recent awards
- What do they really want to fund? Why?
- Learn about the proposal process

Industry

- Dedicated funding programs
  - Small research projects
  - Fellowships
- Where to connect?
  - Research labs
  - Product groups
- How to pitch
  - What does the decision-maker want?
  - Pitch a crystal-clear deal – what you want, what you are willing to give them

University Sources

- Centers, Institutes
- Startup grants, often at School or University level
- University-organized consortia
- All come with various obligations

That First Award Feels Really Good!

Questions?

NITRD Organizational Chart

White House
Executive Office of the President

Office of Science and Technology Policy

National Science and Technology Council

Committee on Technology

National Coordination Office (NCO) for Networking and Information Technology Research and Development

Subcommittee on Networking and Information Technology Research and Development (NITRD)

Senior Steering Groups (SSGs)

- Big Data
- Cyber Physical Systems
- Cyber Security R&D
- Health IT R&D
- Wireless Spectrum R&D

Program Component Areas (PCAs)

- Cyber Security and Information Assurance (CSIA)
- Human Computer Interaction and Information Management (HCI&IM)
- High Confidence Software and Systems (HCSS)
- High End Computing (HEC)
- Large Scale Networking (LSN)
- Software Design and Productivity (SDP)
- Social, Economic, and Workforce Implications of IT and IT Workforce Development (SEW)

Subgroups and Teams

- Faster Administration of Science and Technology Education and Research (FASTER)
- Health Information Technology Innovation and Development Environments (HITIDE)
- LSN/Joint Engineering Team (JET)
- LSN/Middleware and Grid Interagency Coordination (MAGIC) Team
- SEW Education

NITRD