National Institutes of Health

Panel on Federal Research Funding Sources for Computing
CRA Conference at Snowbird, UT on June 25-27, 2006

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Panel Title: Federal Research Funding Sources for Computing

Panel Description: This workshop reports on federal research funding for computing initiatives. Current developments and expectations for the future will be discussed by participants from NSF-CISE, NIH and NSA.

This talk is a very brief introduction to the NIH for a computational science audience that is unfamiliar with NIH. Materials have been included from public presentations and websites wherever possible.

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From “The Networking and Information Technology Research and Development Program, Supplement to the President’s Budget for Fiscal Year 2007”

Agency NITRD Budgets by Program Component Area

FY 2006 Budget Estimates
and
FY 2007 Budget Requests
(Dollars in Millions)

Agency		Total
NSF	2006 Estimate	810.3
	2007 Request	903.7
OSD and DoD Service research orgs.[2,3]		543.7
		497.8
NIH		500.6
		490.7
DARPA[3]		368.3
		465.7
DOE/SC[6]		255.8
		344.7
NSA[3]		140.5
		117.9
NASA		78.1
		82.0
		61.7

www.nitrd.gov/pubs/2007supplement

Why NIH is on this panel.

About the NIH

The Nation's Medical Research Agency

- The NIH invests over $27 billion annually in medical research for the American people.
- More than 80% of the NIH's funding is awarded through almost 50,000 competitive grants to more than 212,000 researchers at over 2,800 universities, medical schools, and other research institutions in every state and around the world.
- About 10% of the NIH's budget supports projects conducted by nearly 6,000 scientists in its own laboratories, most of which are on the NIH campus in Bethesda, Maryland.

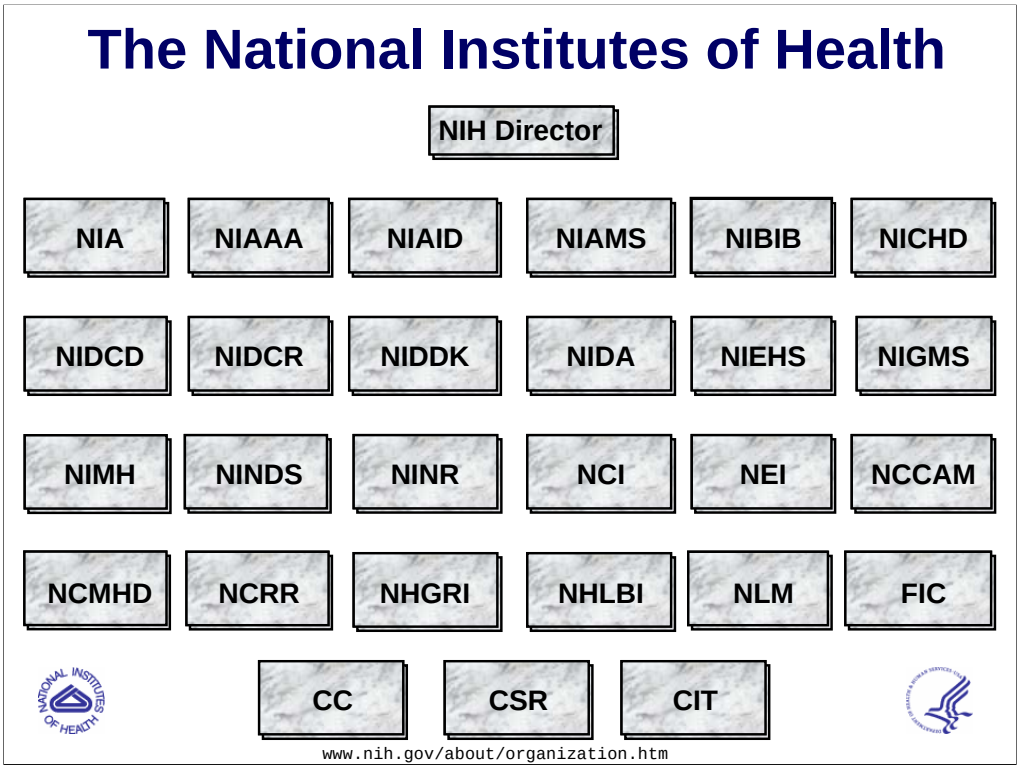
www.nih.gov/about
www.nih.gov/about/budget.htm

www.nih.gov/about/organization.htm

Unlike NSF, DARPA and so on the NIH has a significant internal research presence.

In NIH terms the internal NIH research is "intramural" and the external NIH-supported research is "extramural."

Most NIH Institutes and Centers have both intramural and extramural research, but some only have extramural research.



27 Separate Institutes & Centers (IC):

- Different missions & priorities
- Different budgets

From “The National Institutes of Health FY 2007 President’s Budget”

NATIONAL INSTITUTES OF HEALTH
Summary of Appropriations
(Dollars in millions)

Appropriation	FY 2005 Budget Authority 1/	FY 2006 Appropriation 1/	FY 2007 Estimate 1/
	Includes AIDS	Includes AIDS	Includes AIDS
NCI	4,828	4,793	4,754
NHLBI	2,941	2,922	2,901
NIDCR	392	389	386
NIDDK 2/	1,864	1,855	1,844
NINDS	1,539	1,535	1,525
NIAID 3/	4,403	4,383	4,395
NIGMS	1,944	1,936	1,923
NICHD	1,270	1,265	1,257
NEI	669	667	661
NIEHS	645	641	637
NIA	1,052	1,047	1,040
NIAMS	511	508	505
NIDCD	394	393	392
NIMH	1,412	1,404	1,395
NIDA	1,006	1,000	995
NIAAA	438	436	433
NINR	138	137	137
NHGRI	489	486	483
NIBIB	298	297	295
NCRR	1,115	1,099	1,098
NCCAM	122	121	121
NCMHD	196	195	194
FIC	67	66	67
NLM	315	315	313

officeofbudget.od.nih.gov/pdf/Press info final.pdf

NIH Roadmap for Medical Research

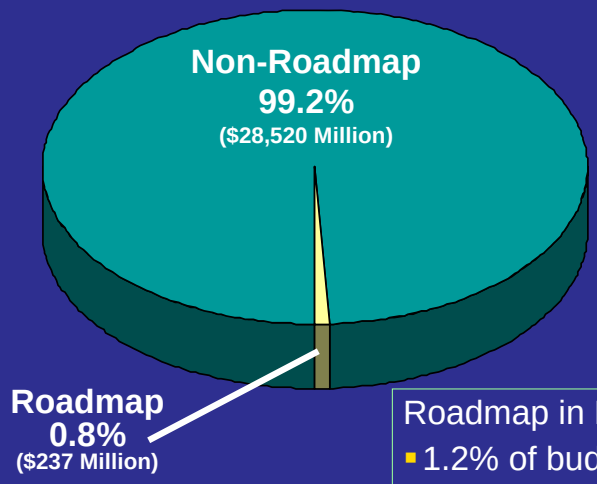
- Developed to
  - Increase synergy across NIH
  - Respond to concerns about the perceived “balkanization” of NIH (Congress, IOM report)
- Developed with wide extramural input
- Beyond the scope of a single Institute or Center and benefits all
  - Emerging areas of science
  - High risk/high impact research
  - Enabling science infrastructure

From “NIH at the Crossroads” presentation by Dr Zerhouni, May 31 2006

There is significant computation, or “informatics,” in the NIH Roadmap initiatives.

Roadmap in FY05: 0.8% of Total Budget

FY2005 Request = $28,757M



Roadmap in FY06:
- 1.2% of budget
- 133 institutions, 33 states

From "NIH at the Crossroads" presentation by Dr Zerhouni, May 31 2006

Finding Current Awards

- Internet search for “NIH CRISP” to see searchable grant location database back to 1972 (`www.crisp.cit.nih.gov`)
- To see the monetary value of the awards found in CRISP, use:

  `grants2.nih.gov/grants/award/state/state.htm`
- To find biomedical research results, use the NLM’s PUBMED `www.pubmed.gov`

NIH Miscellany

- NIH grant types (there are many):
  `grants1.nih.gov/grants/funding/funding_program.htm`
  `grants1.nih.gov/grants/funding/ac.pdf`
- NIH peer review process:
  `grants1.nih.gov/grants/peer/peer.htm`
- NIH talks and courses online: `videocast.nih.gov`

Current Examples

National Centers for Biomedical Computing

www.biomedicalcomputationreview.org

www.bisti.nih.gov/ncbc

The 2006 All Hands Meeting will be on July 17-19 at the NIH in Bethesda, MD: **www.bisti.nih.gov/ahm2006**

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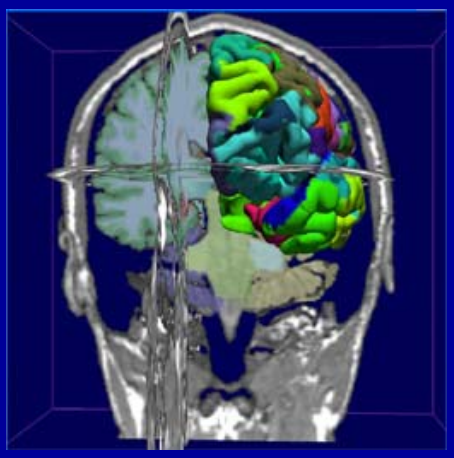
NCRR Biomedical Technology Program

- **Biomedical Technology Resource Centers Grants (P41)**
- **Research Center Grants (U24, U54, P20)**
- **Research Project Grants (R01, R21, R21/33)**
- **SBIR (R43, R44) and STTR (R41, R42) Grants**
- **Shared Instrumentation Grants (S10)**



www.ncrr.nih.gov/biotech/btresctr.asp

Stimulates basic research to develop versatile new technologies and methods that help researchers who are studying virtually every human disease.

Provides access to state-of-the art technologies and instruments that enable both basic biomedical research and clinical investigations of a multitude of health issues.

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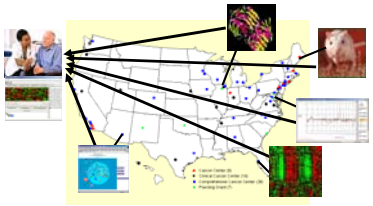
National Cancer Institute

Cancer Biomedical Informatics Grid™ (caBIG™)



- Common, widely distributed infrastructure permits research community to focus on innovation
- Shared vocabulary, data elements, data models facilitate information exchange
- Collection of interoperable applications developed to common standards
- Raw published cancer research data is available for mining and integration

www.caBIG.NCI.NIH.gov

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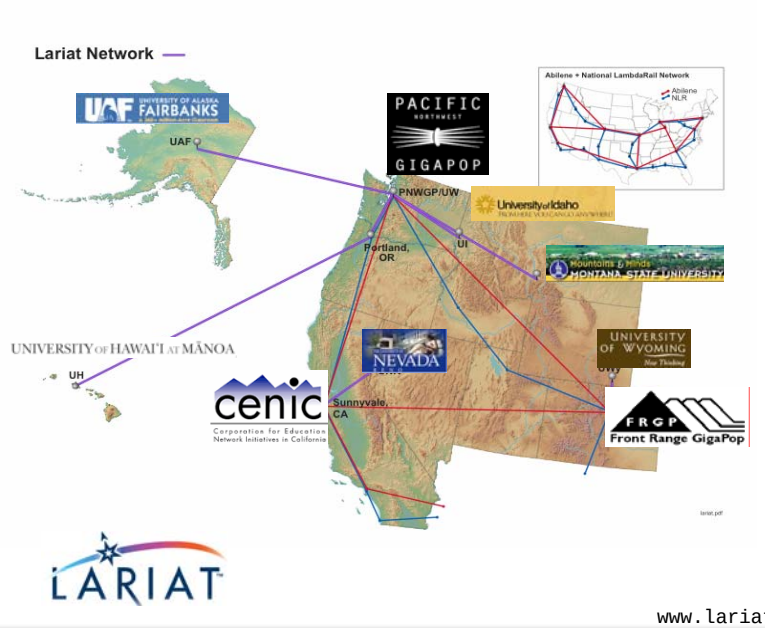
NCRR Lariat



There are significant communities that do not have ready access to the Internet and to the tools and resources that we often assume to be uniformly available.

This is an important limitation for research and for health care.

Lariat has addressed this challenge in six northwestern states: Alaska, Hawai'i, Idaho, Montana, Nevada, Wyoming.

Also see: Supporting Connectivity for Biomedical Research (Joint meeting with Internet2 and TATRC):

www.esi-bethesda.com/ncrrworkshops/connectivity/index.aspx

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Modeling of Infectious Disease Agent Study (MIDAS)

MIDAS is a collaboration of research and informatics groups to develop computational models of the interactions between infectious agents and their hosts, disease spread, prediction systems, and response strategies. The models will be useful to policymakers, public health workers, and other researchers who want to better understand and respond to emerging infectious diseases. If a disease outbreak occurs, the MIDAS network may be called upon to develop specific models to aid public officials in their decision-making processes.

MIDAS is an NIGMS Program with a research network built using the U01 mechanism; started May 2004.

Scientific Director: Dr Irene Eckstrand
Program Director: Dr James Anderson
Informatics Advisor: Dr Peter Highnam

www.NIGMS.NIH.gov/initiatives/midas www.epimodels.org

Multi-disciplinary

Large scale distribution computation, with the NSF-supported supercomputing centers

Large complex highly stochastic simulation models

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Opportunities?

Finding Opportunities, I

- NIH Guide for Grants and Contracts
  `grants1.nih.gov/grants/guide/index.html`
- Biomedical Information Science and Technology Initiative (BISTI)
  `www.BISTI.NIH.gov`
- Bioengineering Consortium (BECON)
  `www.BECON.NIH.gov`
- NIH Roadmap
  `NIHRoadmap.NIH.gov`
- And, increasingly:
  `www.Grants.gov`

The **NIH Guide for Grants and Contracts** is the official publication for NIH medical and behavioral research grant policies, guidelines and funding opportunities.

BISTI and BECON are trans-NIH organizations that track activities, opportunities and so on that are particularly relevant to computing.

Finding Opportunities, II

- Visit websites for each of the NIH institutes and centers. For “IXY”:
  `www.IXY.NIH.gov`
- Join NIH public mailing lists:
  `list.NIH.gov`
- Communicate with NIH Program Directors; many of the computational people are listed on the BISTI site.

Current BISTI Announcements

- Innovations in Biomedical Computing Science and Technology (R01/R21)
- Innovations in Biomedical Computational science and Technology (SBIR/STTR)
- Collaborations with National Centers for Biomedical Computing (R01/R21)
- Continued Development and Maintenance of Software

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