

NATIONAL SCIENCE FOUNDATION

UI leading way to research tool

\$121 million project is dedicated to removing the technological barriers that obstruct many scientific projects in U.S.

By PAUL WOOD

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URBANA — A new \$121 million project led by the University of Illinois will help researchers collaborate in a secure environment, while focusing on their work rather than the technology behind it.

The National Science Foundation is providing the funding over five years — with an option to renew for another five — so that a powerful but more cumbersome knowledge grid, TeraGrid, can be replaced with a new, seamless one.

John Towns of the UI's

National Center for Supercomputing Applications is the project leader and principal investigator for the partnership of 17 institutions in the Extreme Science and Engineering Discovery Environment.

Shortened to XSEDE, it

promises to be “the most advanced, powerful and robust collection of integrated advanced digital resources and services in the world.”

Towns, who was also a leader in the TeraGrid project, said the older project, started more than a decade ago,

helped thousands of scientists to complete thousands of research projects, at no cost to the scientists.

XSEDE can help even more scientists, he said, by removing obstacles inherent to using different technologies.

“By its nature, TeraGrid

focused on folks capable of using very high-end and advanced systems,” Towns said.

Instead of focusing on technology, XSEDE focuses on the researchers themselves, the project director said.

Please see XSEDE, A-6

XSEDE

Continued from A-1

Everything will be multi-platform and more transparent to use in XSEDE, Towns said, helping researchers who don't have all the latest devices and software a supercomputing center does.

In his example, three research groups are collaborating on a project.

Two of them have outstanding clusters of technology, and the third has a fantastic database to share with them. XSEDE will allow them all to work at the same level (and in security) to create a virtual lab.

Multiple computers connected by high-speed network mean that data don't have to be moved from site to site, or

worry about which cluster is busy, Towns said.

“This will really enhance the productivity of researchers,” he said.

“Over the last few years (and since TeraGrid) there have been a variety of efforts in remote and integrated access, a lot of very interesting things. Researchers will spend a lot less time messing around with ‘where's my data and what resources do I have access to.’”

As with TeraGrid, the collaborative computing will help with large simulations, such as weather forecasting, manipulation of data and in scientific imaging.

They are useful in fields like earthquake engineering, materials science, medicine, epidemiology, genomics, astronomy and biology.

XSEDE will lower many

technological barriers to access and use, Towns said, and offer outreach to new communities that haven't traditionally used such digital services.

There are 16 supercomputers in XSEDE.

The partnership includes the UI, Carnegie Mellon University/University of Pittsburgh, University of Texas at Austin, University of Tennessee at Knoxville, University of Virginia, Shodor Education Foundation, Southeastern Universities Research Association, University of Chicago, University of California at San Diego, Indiana University, Jülich Supercomputing Centre, Purdue University, Cornell University, Ohio State University, University of California at Berkeley, Rice University, and the National Center for Atmospheric Research.

EDITORIALS

Encouraging talk on pilot training

As one aviation door is closing, will another one open?

After last week's vote by **University of Illinois** Board of Trustees, the Institute of Aviation is officially living on borrowed time.

The UI board voted 6-2 to shut down the institute, but it will allow current students time to complete their studies. The last students are expected to be finished by the end of the 2013-14 academic year.

The closing is unfortunate. Long a part of the UI, the institute has been producing pilots in a degree-awarding program since shortly after the end of World War II. Its closure, the result of a tight budget situation, is expected to save about \$750,000 a year. But the institute also is a casualty of concerns that producing pilots does not fit within the UI's academic mission.

Pilots, however, play a valuable role in society whether they have college degrees or not. There may be disagreement about how many will be needed in coming years, but more will be needed.

So it is encouraging to hear Parkland Col-

lege President Tom Ramage and acting UI Chancellor Robert Easter raise the possibility that Parkland might pick up some aspects of pilot training.

Patty Lehn, a spokeswoman for Parkland, said a role for Parkland in pilot training is strictly in the "concept" stage. But she said that Parkland is open to "engaging in a conversation" about what role it could play in meeting student demand.

"We'd have to evaluate what the need is. ... Certainly, cost would be a factor as well," said Lehn. "I am sure there might be other (parties) who might be interested as well."

Obviously, it is not realistic to think of re-creating a new aviation institute under the auspices of Parkland College. But perhaps some arrangements could be worked out that would provide aspiring pilots with an opportunity to continue their education locally while taking advantage of the facilities at the UI's Willard Airport.

Just because the aviation institute will soon be no more doesn't mean that pilot training under an academic umbrella has to disappear from East Central Illinois.

Willard pay parking is real disincentive

I read the article about how the Champaign County Economic Development Corp. is trying to find out the best way to run Willard Airport and is paying up to \$15,000 for the study.

I could have saved the corporation a lot of money.

The first course of action to get Willard Airport back into the groove is to do away with its pay-parking lot. I fly out of Bloomington because I can leave my car for an extended period of time and not have to worry about the added expense.

Delta flies into and out of Bloomington about four times a day to Atlanta. I believe Willard, at one time, also had Delta. But after a few years of low-passenger loads it pulled out. It's a joke that Willard can't even keep one of the top carriers.

I know many people who fly out of Bloomington because of the pay parking at Willard. Bloomington has several hotels and restaurants right across from its airport, and the main road for shopping is only a few miles down the road.

The economic development corporation should send a representative down I-74 about 50 miles and watch how it is done.

ROBERT WESTON
St. Joseph

Rx for doctor: Save up, then pay student loans



CAROLYN BIGDA
Getting Started

Many students face a hefty amount of education debt. But for medical school graduates, the loans are even bigger.

According to the Association of American Medical Colleges, the average 2010 grad who borrowed to pay for med school finished studies with \$158,000 in loans.

With such a large debt load, young physicians might wonder if they should pay off at least some of their loans before focusing on other financial goals. One reader who just graduated from medical school wanted to know if he should prioritize eliminating \$150,000 in federal student loans or to start saving for retirement.

David Morganstern, a financial planner in Portland, Ore., and a member of the MD Preferred Financial Advisor Network, which specializes in counseling physicians, offered these suggestions:

Set up an emergency fund

Don't worry about getting rid of the loans just yet.

In the first few years out of med school, a young physician likely won't earn enough to pay anything more than the minimum payment on his student loans.

Consider: Under the standard 10-year repayment plan, the monthly bill for a loan balance of \$150,000 is \$1,726 (including interest, which for Stafford loans, the most common federal student loan, is 6.8 percent). "He shouldn't go overboard trying to put extra money toward his loans at first," Morganstern said.

The first priority is to build a cash savings account. That way, if there's a large expense, you don't have to borrow more money. Morganstern recommends putting aside three months of take-home pay.

Another priority: disability insurance.

"After spending all that time in training, you want a cushion in case you're no longer able to work," he said.

Then focus on retirement

Once an emergency fund is in place, put money in a company retirement plan, especially if an employer match is offered.

No match? Morganstern suggests contributing to a Roth individual retirement

Tuition rising

U.S. medical school tuition and fees

Average cost, including health insurance

Year	Public school	Private school
2009-10	\$25,073	\$42,789
Nonresident	\$45,786	\$44,386
2010-11	\$26,845	\$44,491
Nonresident	\$48,683	\$45,986

SOURCE: Association of American Medical Colleges

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account during your residency program.

Roths have certain advantages: Savings grow tax-free, and withdrawals in retirement are also free of tax. (There's no tax break on contributions, however.)

The ability to contribute to a Roth is based on income. Earn too much and you may not be eligible to contribute.

In 2011, for example, single tax filers who earn \$122,000 or more are disqualified. For couples who file a joint tax return, the income ceiling is \$179,000.

And manage your loans

If you're struggling to manage your education debt, you have several repayment options for federal student loans that can help lower your monthly bill, said Mark Kantrowitz, founder of FinAid.org, an online financial aid resource.

One alternative is extended repayment, available if you've borrowed more than \$30,000 from a single lender. You pay off the loan over as much as 25 years in smaller monthly payments but pay more in interest over the life of the loan.

Income-based repayment is another option. Here, your payment is capped to a percentage of your income. For example, if you make \$50,000 per year and have \$150,000 in debt, your monthly payment would be approximately \$420.

Another benefit: If you work in public service (say, at a 501(c)(3) non-profit hospital), after 10 years you may qualify for debt forgiveness. For all other borrowers, the debt could be waived after 25 years.

You have to qualify for income-based repayment. To see if you do, visit studentaid.ed.gov and use the income-based repayment calculator.

Kantrowitz said you're allowed to switch repayment plans at least once a year. And there's no prepayment penalty.

"It's not unheard of that doctors pay off their debt in seven years," he said.

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News

Anxiety and Uncertainty

July 27, 2011

WASHINGTON -- As the Aug. 2 deadline for increasing the federal debt limit approaches with little sign of an agreement between President Obama and Congressional Republicans, the uncertainty is growing at colleges: what happens to financial aid and federal research funds if the government defaults?

So far, no one seems to know.

The Education Department has been silent on what will happen to financial aid payouts if the federal government bumps up against its \$14.3 trillion borrowing limit next Tuesday. (Some analysts estimated Tuesday that the money will not run out until a few days later, perhaps as much as a week, due to increased tax receipts, but the Obama administration has described the date as a hard deadline.) Once the limit is reached, the U.S. Treasury will no longer be able to borrow to pay all of its bills and will have to prioritize its payments, including Social Security checks, debt payments and federal financial aid programs such as Pell Grants and student loans.

An Education Department spokesman said the department could not comment on what might happen if a deal is not made before the debt ceiling is reached, and several higher education associations said they had heard nothing about contingency plans.

"We're left wondering if student aid will be available," said Justin Draeger, president of the National Association of Student Financial Aid Administrators. The group received assurances from the Education Department that the aid would be disbursed, he said, but the uncertainty surrounding the situation makes it hard to believe. "If the president is unsure if Social Security will be paid, how can there not be a question about student aid?" Draeger said.

The government currently borrows about 40 cents for every dollar it spends, meaning spending will need to be cut 40 percent if it can no longer borrow. Debt interest, Social Security, defense spending and Medicare and Medicaid make up more than 60 percent of the budget, leaving the remaining discretionary domestic spending -- including all of the money that goes to federal financial aid and research -- vulnerable, said Mark Kantrowitz, publisher of Finaid.org.

"It's a very difficult situation," Kantrowitz said. "The entire higher education system is effectively at risk from this."

The timing is especially difficult because the Aug. 2 deadline falls near the start of the fall semester for many colleges and universities. Several financial aid advisers at NASFAA's recent conference said that their disbursement date, when they are scheduled to receive federal funds, falls on Aug. 3, so even a short-term federal cash flow problem will be disruptive, Draeger said.

For institutions that depend on tuition for much of their operating budget, even a short-term delay could cause a ripple effect. The colleges would be unable to pay their bills once they have spent their cash reserves, and students who depend on loans for living expenses would probably not receive that money, he said.

Many community colleges, where budgets are tight and many students receive federal financial aid, might be most at risk. But so far, many administrators have hoped that a deal would be reached in time, said David Baime, vice president for government relations at the American Association of Community Colleges.

"Part of it is there's just so much uncertainty," Baime said. "I think people are hopeful that this problem is going to get solved."

Major research universities, most of which have endowments that would allow them to ride out the short-term uncertainty, would also face an interruption in federal funding for science and research. Some members of the Association of American Universities have said they are concerned about the possibility, said Barry Toiv, vice president for public affairs at the AAU. "There's really nothing to tell them at this point," Toiv said. "The government has been silent on how the agencies would handle this."

In some ways, a debt ceiling deal would only replace one form of anxiety with another. Student aid programs, including Pell Grants and some federally subsidized loans, have frequently been seen as a likely target for cuts. In two plans put forward by House Speaker John Boehner and Senate Majority Leader Harry Reid, the Pell Grant received dedicated funding but would require more discretionary spending in both cases to keep the maximum grant at \$5,550. Both plans would eliminate subsidized loans for graduate students.

"I think the degree of uncertainty is unprecedented," Draeger said. "They always talk about certainty being important for capital markets, for Wall Street and investors. Certainty is no less important for students and parents who are trying to figure out how to pay for college."

— Libby A. Nelson

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THE CHRONICLE

of Higher Education

Graduate Students

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As Graduate-Student Population Grows, So Does Its Reliance on Financial Aid

By Ryan Brown

Washington

The nation's growing number of graduate students, gravitating particularly toward master's-degree programs in business and education, are leaning heavily on loans and grants to pay for their education, says a report released today by the U.S. Department of Education.

The analysis, which used data on enrollment and financial aid from the 2007-8 National Postsecondary Student Aid Study, found that two-thirds of the three million graduate students in the United States were in master's programs, with half of that group studying business or education. Fifteen percent of graduate students were in doctoral programs, and 9 percent were in professional programs, including law, theology, and medicine and health sciences. The balance of graduate students were enrolled in certificate programs.

Over all, the number of graduate students has increased by 57 percent since 1988.

Master's students were significantly less likely than either doctoral or professional students to enroll full time, with only 17 percent of those studying education and 32 percent of other master's students taking a full course load each year. That compares with 60 percent of doctoral students in fields outside education, 79 percent of law students, and 89 percent of medical students with full course loads. More than 70 percent of master's students in education or business and doctoral students in education continued to work full time while enrolled in graduate study. In contrast, only 43 percent of Ph.D. students, 10 percent of medical students, and 19 percent of law students did so.

The average annual price of attendance for full-time graduate study ranged from \$28,400 for a master's program at a public institution to \$52,200 for a professional-degree program at a private, nonprofit institution. Across all types of degrees and institutions, however, most students received some type of financial aid. Those in

professional programs at private, nonprofit institutions received the highest aid, on average, at \$36,200 annually.

Aid for graduate students included loans and grants, including employer subsidies, assistantships, and other work-study arrangements. More than three-quarters of professional students borrowed against the cost of their education, while only 42 percent of doctoral students in education and 20 percent of those in other fields did. Ph.D students were the least likely group of graduate students to be dependent on loans, averaging 14 percent of their aid in loans, compared with 80 percent of law students and 82 percent of medical and other health-sciences students.).

The study also found that master's and doctoral students delayed graduate education more frequently than professional students did. While 79 percent of medical students and 68 percent of law students enrolled in graduate programs within two years of completing a bachelor's degree, only 39 to 51 percent of master's students (depending on their field of study), and 44 percent of doctoral students in noneducation fields did the same.

The study also noted other patterns in graduate education. For instance, 28 percent of Ph.D. students in noneducation fields came from outside the United States, compared with 12 percent of other graduate students. And students in M.B.A. programs included by far the largest cohort, at 22 percent, to attend for-profit institutions.

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July 27, 2011

Colleges Join Plan for Faster Computer Networks

By JOHN MARKOFF

A coalition of 28 American universities is throwing its weight behind a plan to build ultra-high-speed computer networks — with Internet service several hundred times faster than what is now commercially available — in the communities surrounding the participating colleges.

The project, which is named GigU and will be announced on Wednesday, is meant to draw high-tech startups in fields like health care, energy and telecommunications to the areas near the universities, many of which are in the Midwest or outside of major cities. These zones would ideally function as hubs for building a new generation of faster computer networks, which could make the United States more competitive internationally.

For now the plan is a work in progress, with the universities reaching out to telecommunications companies for suggestions and to corporations and nonprofits for business ideas. The institutions involved include Arizona State University, Case Western Reserve University, Howard University, Duke University, the University of Michigan, the University of Washington and the University of Chicago.

"We're not asking for government money," said Blair Levin, a fellow at the Aspen Institute who is heading the project. "We believe the right approach is to have the private sector fund the networks."

By offering one-gigabit network connections — fast enough to download high-definition movies in less than a minute — not just to scientific researchers and engineers but to the homes and businesses that surround universities, the group aims to create a digital ecosystem that will attract new companies, ideas and educational models.

"It's a sandbox for the research community and the residents, too," said Lev Gonick, chief information officer at Case Western in Cleveland.

Last year, Case Western set up a pilot program in a several-block area near campus, he said. The Case Connection Zone offers one-gigabit fiber-optic networking to 104 homes adjacent to the university. Within three months of its birth, Mr. Gonick said, three startups moved to the neighborhood.

“We believe a small amount of investment can yield big returns for the American economy and our society,” he said.

The GigU members come mainly from the heartland — states like Indiana, Kentucky, Missouri, Montana and West Virginia — where they can potentially have a big impact on midsize communities across the country. The biggest universities already have access to higher-speed networks.

The colleges are preparing to talk to big telecommunications companies about ways to attract new ventures to their neighborhoods through super-fast computing. Then, they will seek out business proposals for building the networks, “not decades hence, but in the next several years,” the group said in a statement.

Although the United States pioneered computer networks from the 1960s through the '90s, in recent years it has fallen behind other nations in deploying and improving network technology. A recent study by the World Economic Forum found that while the United States ranked fifth in overall network “readiness” — a broad index comparing countries in the digital era — it came in 30th in network bandwidth available to the population.

In 2010, before joining the Aspen Institute, a policy research group, Mr. Levin was the staff director of the Federal Communications Commission’s National Broadband Plan, which aims to make high-speed Internet service available throughout the United States. After leaving the agency and talking to researchers at universities around the country, he came to believe that the United States needed to find a strategy for continuously improving the quality of its Internet technology.

“It’s the difference between seeing it as a race-to-a-tape versus creating a constantly evolving ecosystem that is improving our networks,” Mr. Levin said.

The research community must still counter skepticism about what some technologists call a “build it and they will come” mentality. Some technologists say that once faster networks are deployed, new uses will emerge that cannot be foreseen today. Others argue that high-resolution video is the only current general application for the highest speed network technology.

“The concept is laudable, but the real question is for what purpose?” said Michael Kleeman, a computer network designer and telecommunications policy strategist at the University of California, San Diego.

This article has been revised to reflect the following correction:

Correction: July 27, 2011

A previous version of this article misstated the name of a program run by Case Western. It is the Case Connection Zone, not the Case Connected Zone.

THE CHRONICLE

of Higher Education

Maryland's Fiscal Woes Should Be a Wake-Up Call to Governing Boards, Regent Says

July 26, 2011, 5:29 pm

By Libby Sander

The e-mail came through at 6:47 a.m. last Tuesday. In two terse paragraphs, William E. (Brit) Kirwan, chancellor of the University System of Maryland, broke the news: The University of Maryland at College Park's athletic program was in the red, had been for several years, and had recently exhausted the cash reserves responsible for staving off far-deeper deficits. (A report in *The Washington Post* later provided additional details, including \$83-million in looming debt service on a basketball arena and renovated football stadium.)

The chancellor's note came as a surprise to Charles T. (Tom) McMillen, a member of the Maryland Board of Regents whose days on the Terps' basketball team in the early 1970s were followed by a Rhodes scholarship, 11 seasons in the NBA, and three terms in Congress. Budget holes, of course, are a problem for many athletic programs. But what made this one worse, in McMillen's view, was that the board was largely unaware of the prolonged fiscal troubles.

Despite receiving annual reports from the athletic department on its finances, the budget gaps were never articulated to the regents, McMillen says. "Those reports didn't show deficits, nor did they show transfers from reserves. So the board did not have a full look at what was going on," he says. "If we had had true transparency, we would have seen that. And we didn't."

McMillen praised College Park's new president, Wallace D. Loh, and its new athletic director, Kevin Anderson, for their handling of the situation. (Loh, for starters, has charged a new commission with recommending new sources of revenue and ways to trim expenses.) But he thinks two safeguards could have flagged the problems ahead of time: If the athletic department had been required to submit its budget to the board for approval, or if it had undergone a financial audit each year.

The problem isn't just Maryland's. As costs in Division I athletics continue to escalate, the issue of financial transparency will only become more urgent for boards, McMillen says. "All universities across the nation need to make sure that their governance systems are up to speed for the challenges ahead," he says. "Every board of regents should be reviewing their procedures."

So what's the solution for boards keen on strengthening their oversight of athletics and, as McMillen suggests, bringing their protocols in line with recommendations from the Association of Governing Boards?

After looking around at what other colleges are doing, McMillen says he now has a short list of places he thinks are doing it right. The Board of Regents for the University of Hawaii system, for instance, approves salary raises for highly compensated personnel—including football and basketball coaches—according to a range that mirrors compensation trends at similar institutions. Many universities have boards sign off not only on capital budgets for athletics but operating budgets as well. And others, like the University of Colorado's governing board, have separate committees dedicated to monitoring compliance with NCAA rules and athletes' academic performance.

As for Maryland, McMillen says the Board of Regents will likely discuss how or whether to change its policies concerning athletics at its next meeting in the fall. In the meantime, he says, "I'm not calling for running the athletic department. I'm calling for common-sense steps that will help ensure that there are no surprises."

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