

WHY SUPPORT RESEARCH AT THE NATIONAL SCIENCE FOUNDATION?

FOR STARTERS, SO WE CAN MAKE CYBERSECURITY ON THE CLOUD IMPREGNABLE.

The National Science Foundation (NSF) funds research that advances the frontiers of human knowledge, resulting in breakthroughs by leading researchers in areas ranging from computers to physics to economics. More specifically, through \$30.3 million in grants to Boston University, the NSF makes possible advances and discoveries like these:

■ A SUNNY FORECAST FOR CLOUD SECURITY. Boston University Computer Science Professor Ran Canetti spearheads the Modular Approach to Cloud Security (MACS), an effort to radically transform how we secure cyberspace. The idea is to create a system secured by many small individual parts, rather than from a single firewall. A key component of the project is the Massachusetts Open Cloud (MOC), a one-of-a-kind model for customizable public cloud offerings that is a great example of public-private-university research partnerships. BU receives \$5.3 million for the project through the NSF's Secure and Trustworthy Cyberspace initiative. Hackers receive a major headache.

■ HOW BUSINESSES BEHAVE WHEN THE ECONOMY DOESN'T BEHAVE. A funny thing happened in 2008 when the economy melted down: inflation remained pretty stable. That's the opposite of what traditional economic views predict. Economics Professor Simon Gilchrist intends to find out why, with funding from the NSF Directorate for Social, Behavioral & Economic Sciences. Gilchrist will study the interaction between tightening financial markets and the subsequent lack of pressure to keep prices down. His hypothesis is that in periods of financial distress, businesses that are financially vulnerable will actually raise prices to stabilize their cash flows, even at the risk of reducing their customer base. The findings could have far-reaching implications for the formulation of monetary policy.

■ CREATING NEW FORMS OF LIFE TO MAKE OUR LIVES BETTER. What does it take to merit the NSF's prestigious Faculty Early Career Development (CAREER) award? In the case of BU Assistant Professor Douglas Densmore, it's his work in synthetic biology. Specifically, using software and computers to dramatically reduce the time, costs, and complexities of assembling DNA to create novel living systems. His DNA assembly software will be open source and readily available, freeing scientists around the world from the tedium of lab work so they can focus on using synthetic biology to address societal challenges such as environmental cleanup, renewable energy, and medical problems.

We hope you'll give strong consideration to supporting funding for the NSF. If you have any questions or would like to discuss further the role the NSF plays in our daily lives, please visit bu.edu/federal.



WITH FUNDING FROM NSF, **BOSTON UNIVERSITY** RESEARCHERS ARE DEVELOPING A RADICALLY DIFFERENT WAY TO UPGRADE SECURITY IN CYBERSPACE.