U.S. National Science Foundation

MASSACHUSETTS

FAST FACTS

$553,534,000	**$482,236,000**	**$71,299,000**	**$29,687,000**
Total NSF Awards to Massachusetts	Invested in Fundamental Research in Massachusetts	Invested in STEM Education in Massachusetts	Invested in Massachusetts Businesses

TOP NSF-FUNDED ACADEMIC INSTITUTIONS

Woods Hole Oceanographic Institute	Massachusetts Institute of Technology	Northeastern University
$143,717,000	**$91,379,000**	**$52,428,000**

NSF BY THE NUMBERS

The U.S. National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. To fulfill this vital role, NSF supports basic research and researchers who create knowledge that transforms the future.

DID YOU KNOW? NSF has funded the work of **268** Nobel Prize winners over 75 years.

$9.06B FY 2024 Total Enacted

92% Funds research, education and related activities

11K Awards

1.9K Institutions

358K People

"Data represents FY 2024 Actuals unless otherwise indicated"

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INNOVATION | *Generating new knowledge that provides a greater understanding of the world around us*

The National Deep Inference Fabric (NDIF), led by **Northeastern University**, is a research computing project that will enable researchers to crack open the mysteries inside large-scale Artificial Intelligence (AI) systems. Modern large-scale AI systems, such as large language models, have shown strong capabilities; however, because these systems are trained automatically using massive amounts of data — instead of being designed line-by-line by a programmer — their internal workings are inscrutable to humans. Moreover, performing science on the internals of such large-scale AI systems requires substantial computational resources that are not practical on an institutional scale. NDIF addresses this critical need by planning the development of a unique nationwide research computing fabric that enables scientists to perform transparent and reproducible experiments on the largest-scale open AI systems. Such experiments will advance our nation's understanding of their capabilities, as well as their limitations, robustness, safety issues and impacts on human society.

EXPANDING FRONTIERS | *Generating institutional capacity, new technologies and societal impact*

The broader impact/commercial potential of the NSF Innovation Corps (NSF I-Corps™) Hub at the **Massachusetts Institute of Technology** is to provide training to scientists and engineers to support the translation of critical emerging technologies. The hub is a consortium of universities spanning the New England region, with many of the researchers located in rural and disadvantaged areas lacking access to the resources found in a robust innovation ecosystem. This NSF I-Corps Hub project is based on the development of a regional network that provides STEM researchers throughout New England with I-Corps entrepreneurial training, mentoring and support. Outreach will be a primary activity of the Hub to ensure that all researchers in New England can participate in I-Corps and benefit from this training. The project's goal is to have an impact on local economies by generating good-paying jobs, revitalizing manufacturing and accelerating new industries.

EDUCATION AND WORKFORCE | *Supporting our STEM talent of today and tomorrow*

The importance of algebra in students' academic success is well documented and has led to calls for a grades K-12 approach to teaching and learning algebra. Effective, early algebra interventions in elementary grades that can develop all students' algebra readiness for later grades are needed. An NSF Discovery PreK-12 project, led by **TERC Inc.**, is using a cluster randomized trial to test the effectiveness of a K-2 early algebra intervention when implemented in diverse classroom settings by elementary teachers. The three-year longitudinal study will be implemented across grades K-2, with randomization at the school level. The broader impact of the study will be to deepen the role of algebra in elementary grades, provide much-needed curricular support for elementary teachers, and strengthen college and career readiness standards and practices. Importantly, the study will include elementary schools with high percentages of students who traditionally have less access to the kinds of instruction that can lead to success in algebra.

ON THE CUTTING EDGE

NSF is pushing the boundaries of what is possible in today's most important technology areas, including artificial intelligence, quantum information science, and biotechnology. The Foundation also maintains industry-leading, state-of-the-art facilities around the world.

NCSES

The National Center for Science and Engineering Statistics (NCSES) within the U.S. National Science Foundation is the nation's leading provider of statistical data on the U.S. science and engineering enterprise. As a principal federal statistical agency, NCSES conducts nationally representative surveys and publishes objective data and reports on topics related to research and development, the science and engineering workforce, and STEM education. For example, in FY 2024, **Massachusetts** invested **$52,383,000,000** on research and development.

For more information on NSF's impact in your state, please contact NSF Office of Legislative and Public Affairs at congressionalteam@nsf.gov.

LEARN MORE

- **BROUGHT TO YOU BY NSF** – NSF has invested in discoveries, inventions, and innovations that have shaped the modern world, including the internet, 3D printing, American Sign Language, Magnetic Resonance Imaging (MRI), deep sea exploration, Doppler radar and more. For more information on NSF impacts, please visit: nsf.gov/impacts.

- **RESEARCH SECURITY** – NSF is committed to safeguarding the integrity and security of science and engineering while also keeping fundamental research open and collaborative. NSF seeks to address an age of new threats and challenges through close work with our partners in academia, law enforcement, intelligence and other federal agencies. By fostering transparency, disclosure and other practices that reflect the values of research integrity, NSF is helping to lead the way in ensuring taxpayer-funded research remains secure. To learn more, please visit NSF's Research Security website.

- **FOSTERING INNOVATION** – Every year, NSF funds around 400 companies across nearly all technology areas to create prototypes and commercialize technologies. Learn more at seedfund.nsf.gov.