

NSF Investments Are Key to US Leadership in AI & Quantum

National Science Foundation: A Change Agent for the Change Agents

Discoveries in the fields of Artificial Intelligence (AI) and Quantum science hold the promise to catalyze economic growth and transform the way we live. **The NSF is an indispensable player in the AI and Quantum ecosystem, seeding promising ideas and companies with the funds to create breakthroughs and take them to market.**

How has the NSF already impacted the AI and Quantum enterprise?

- **Funding early research in stochastic modeling and neural networks**, which are the basis for many of today's AI tools like ChatGPT, and paving the way for industry's now annual investment of tens of billions of dollars toward AI research and development.
- **Supporting early quantum algorithm and qubit hardware research**, demonstrating the capabilities and feasibilities of quantum-computing, and igniting a wave of interest by industry leaders to build upon this NSF-funded research.
- **Accelerating the transition from knowledge into economic competitiveness** by providing entrepreneurship training to researchers and seed funding to startups creating game-changing technologies. The NSF's Technology, Innovation, and Partnerships directorate heads these programs for strategic coordination matching agency priorities.¹

Since the 2022 fiscal year alone, the NSF has invested more than \$289M in seed funding for almost 600 AI- and Quantum-related companies, setting the stage for venture capital (VC) funding and paradigm shifts in a wide range of fields. Here's a look at some of the companies and fields the NSF has funded over the years:

Construction

OpenSpace, Inc. provides complete, AI-powered visual records of construction projects for project management. The company was recently valued at \$902M in 2022.

NSF 2018: \$0.975M
VC in 2022: \$157M

Quantum Computing and Networking

Qubitekk, Inc. powered the first U.S. commercial quantum network in Chattanooga, TN. IonQ, a leading quantum computing company worth over \$13B, acquired Qubitekk's assets in 2025, including its 118 patents.

NSF 2016: \$0.225M
VC in 2019: \$2.1M

Healthcare

Diligent Robotics built the Moxi hospital robot to support clinical staff teams on logistical tasks. Moxi has been deployed in more than 30 hospitals, achieved more than 1 million in-hospital deliveries and saved hospital staff more than 600,000 hours.

NSF 2017: \$0.725M
VC in 2022: \$30M

NSF seed funding for AI- and Quantum-related businesses

By city and amount: 2000-2024

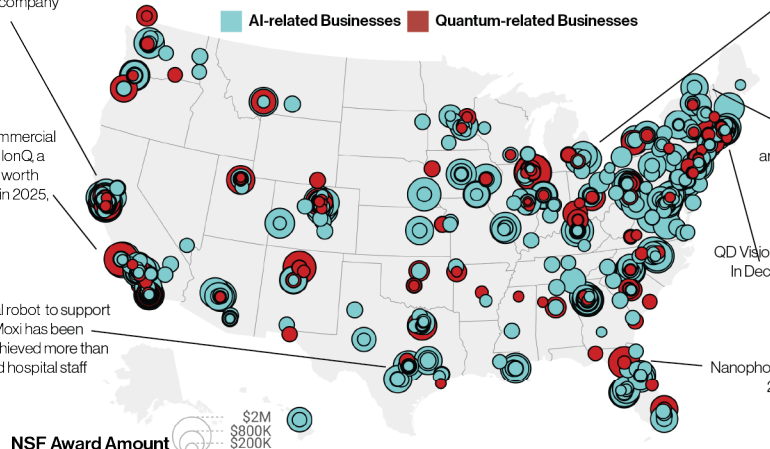


Figure 2

¹ NSF TIP Directorate, America's Seed Fund Program, I-Corps Program, Regional Innovation Engines

Figure 1: OpenAlex Database, July 2025. Highly cited articles are defined as those with a field-weighted citation index in the top 1% AI-related articles given by "Artificial Intelligence" subfield. Quantum-related articles given by topics with the keyword "Quantum." AI and Quantum articles taken together due to substantial overlap publications that are AI-related and Quantum-related. Filtered for articles with at least one U.S. author.

Figure 2: NSF Awards Database, July 2025. "Seed funding" given by Element codes: 5371, 5373, 1505, 1591. AI- and Quantum-related awards were identified using keywords "Artificial Intelligence" and "Quantum." Other data gathered from online press releases and other public information. Total amount invested and number of companies is a lower limit due to search method. Created by Datawrapper.

Share of highly cited US AI- and Quantum-related articles funded By federal agency: 2018-2023

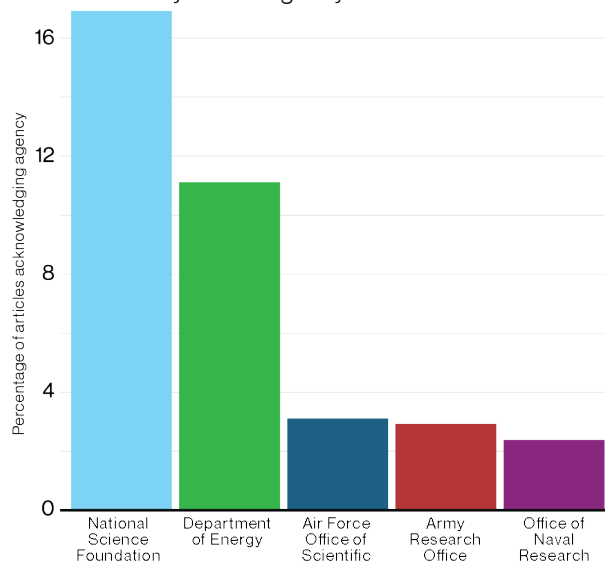


Figure 1

Banking
Clic, Inc. is an Ann Arbor, MI based firm that builds AI-powered chatbots for large banks, enabling them to effectively handle over 95% of inquiries. More than 5 million unique banking customers use their services.

NSF 2017: \$0.975M
VC in 2019: \$52M

Electronics
Green Mountain Semiconductor Inc. is a design-services and IP company specializing in advanced circuit and memory architectures for applications in AI, aerospace, defense, and space.

NSF 2018: \$0.9865M
Estimated Annual Rev: \$4.2M

Next-Gen Displays
QD Vision develops Quantum Dot Films to enhance LCD TV color ranges. In December 2016, Samsung acquired QD Vision's intellectual property, including around 250 patents for \$70M.

NSF 2011: \$0.15M
VC in 2015: \$50.9M

Nanophotonics, Inc. develops quantum dot materials for QLED displays. In 2019, it closed a series A funding round led by Samsung Ventures.

NSF 2014: \$0.893M
VC in 2019: \$3.5M

Created by Datawrapper

How has NSF reached such a pivotal position?

Through strategic investment in AI and Quantum talent and research.

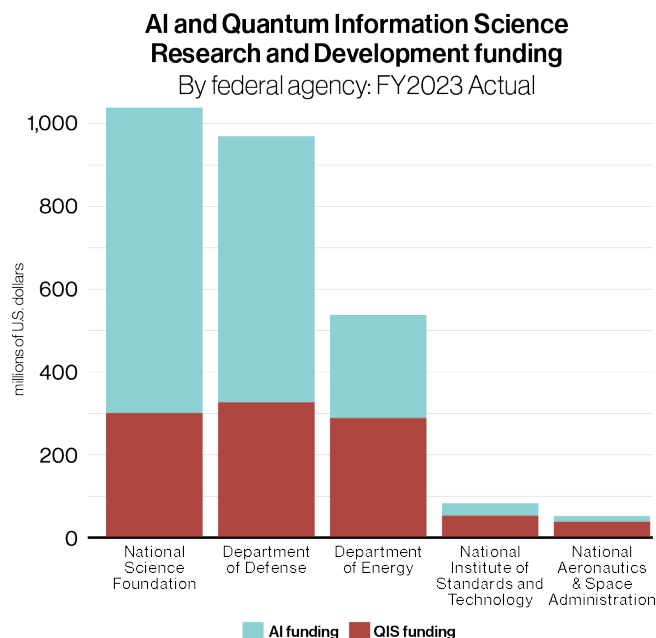


Figure 3

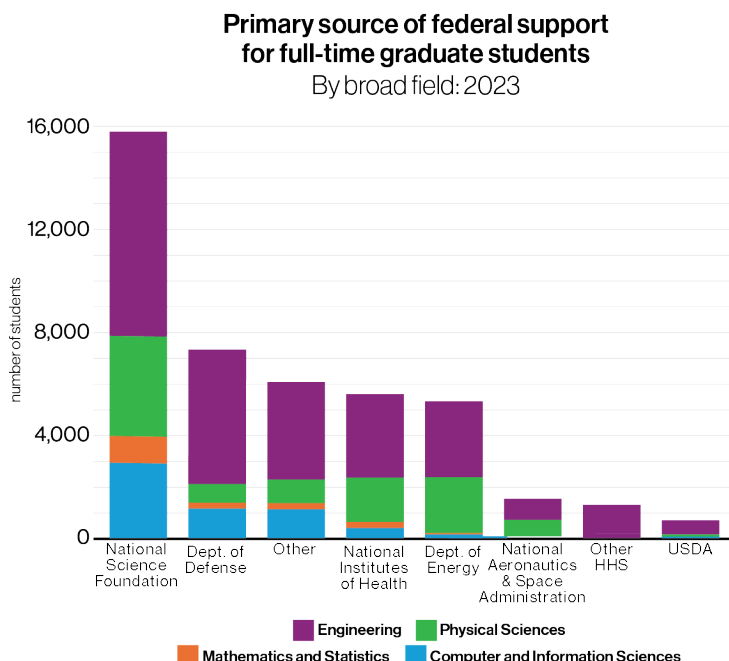


Figure 4

NSF is unique among federal agencies in its approach to supporting emerging technologies like AI and Quantum Science, funding both talent and R&D in concert. From 2000-2022, NSF has funded 6900+ PhD dissertations in Quantum and AI and propelled the careers of field leaders like:²



Geoffrey Hinton

2025 Nobel Prize Winner in Physics for early work in neural networks. His research was funded by NSF in 1986.



Yann LeCun

VP and Chief Scientist at Meta AI. Received over \$750k in NSF research funding in the mid-to-late 2000s.



Peter Shor

Demonstrated capability of quantum computers to break RSA encryption. Received multiple NSF awards for similar research.



Prineha Narang

Founder and CTO of Aliro, a post-quantum cryptography company with over \$9M in VC funding. Graduate and early career work supported by NSF.

NSF investments in STEM education and workforce training like these come from research-oriented and education-oriented programs alike.

NSF-funded talent is therefore closely connected to NSF-funded basic research and facilities, creating a self-reinforcing network of STEM collaboration and advancements. Part of this holistic investment is a focus on building broad and deep collaboration networks and innovation ecosystems.

Ways the NSF is advancing U.S. leadership in AI and Quantum:³

- **Training the workforce.** The Advanced Technology Education (ATE) program provides hundreds of two-year colleges with grants to modernize their courses, purchase up-to-date equipment, and retrain instructors so the U.S. has a strong workforce of technicians trained for the future.
- **Doing the deep science.** The NSF's 5 Quantum Leap Challenge Institutes are multi-campus collaborations focused on creating quantum breakthroughs through collaboration, education, and innovation. And, with \$540M in direct investments and partnerships across federal agencies and the private sector, the NSF's 27 AI research institutes connect over 500 institutions together to advance AI research.
- **Creating economic growth.** Regional Innovation Engines (RIEs) serve to spur regional and national economic growth. They form regional coalitions of institutions, researchers, and companies that advance critical technologies and address pressing national challenges.

NSF programs driving U.S. leadership in AI and Quantum

By city and type

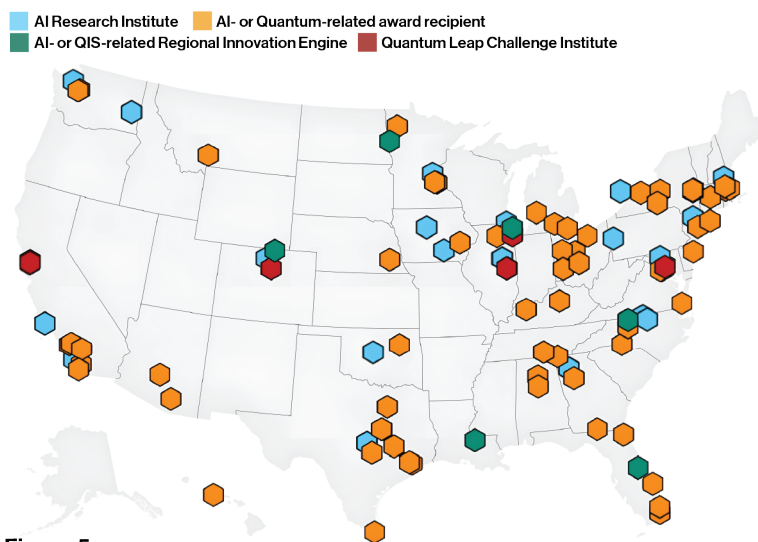


Figure 5

Created by Datawrapper

² National Bureau of Economic Research, June 2025, <https://doi.org/10.3386/w33944>.

³ ATE program, AI Institutes, Quantum Leap Challenge Institutes

Figure 3: NOCO and NITRD FY2025 Supplements to the President's Budget

Figure 4: National Center for Science and Engineering Statistics (NCSES), 2025. Survey of Graduate Students and Postdoctorates in Science and Engineering: Fall 2023. NSF 25-317. Alexandria, VA: U.S. National Science Foundation. Available at <https://nces.ed.gov/surveys/graduate-students-postdoctorates/s-e/2023>. Photo Credits: @Nobel Prize Outreach, Jeremy Barande, CC BY-SA 2.0 - <https://creativecommons.org/licenses/by-sa/2.0/>; via Wikimedia Commons; International Centre for Theoretical Physics, CC BY 3.0 - <https://creativecommons.org/licenses/by/3.0/>; via Wikimedia Commons; U.S. Department of State from United States, Public domain, via Wikimedia Commons

Figure 5: NSF award database, AI institute map, July 2025. Element code: 741200. Quantum-related and AI-related awards determined by keywords "Quantum" and "Artificial Intelligence" respectively. Created by Datawrapper