

CMU RALES FELLOWS

PREPARING THE U.S. INNOVATION ECONOMY FOR THE FUTURE

In the decades ahead, the **Innovation Economy** will be driven by thought leaders in the science, technology, engineering and math (STEM) fields.

- Knowledge and technology industries account for 17% of the U.S. GDP, generating \$2.7 trillion in output, according to the NSB's Vision 2030.

- The U.S. has traditionally led the world in research and development spending for STEM fields, but has fallen behind over the past decade. According to the National Science Board, the U.S. share of R&D spending was 37% in 2010, dropping to 25% in 2017.

- The CHIPS and Science Act of 2022 helped reverse this trend, authorizing \$280 billion in federal spending over the next 10 years, much of which will be for science research and development.

THE MISSING MILLIONS

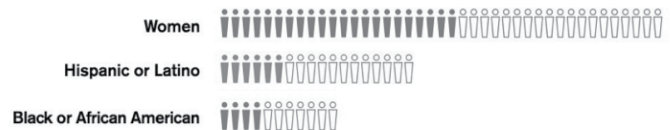
Increased R&D investments will not be enough for the U.S. to maintain its leadership. Cultivating talented students and preparing them to take on leading roles in industry, academia and government is vitally important to maintaining the United States' role in the global, tech-driven economy.

- Demand for STEM workers continues to grow. By 2026, STEM jobs are forecast to grow by 13% compared to growth of 7% in the overall U.S. workforce.

- The National Science Foundation and National Science Board (NSB) have issued urgent calls to increase the U.S. STEM talent pool — and to address wide-ranging issues that have kept women and people of color from pursuing education and careers in STEM fields — in order for the U.S. to maintain its position as a leader in research and to compete globally.

- One important way to close the gap in STEM professionals is to create opportunities and access to education for groups that have traditionally been underrepresented in the field. **These underrepresented groups, including women and people of color, are who the National Science Foundation (NSF) director Dr. Sethuraman Panchanathan has called "The Missing Millions."**

MISSING MILLIONS: FASTER PROGRESS NEEDED TO REDUCE SIGNIFICANT GAP



Legend

x 100,000 people in 2020 S&E workforce

x 100,000 additional people needed in 2030 for the S&E workforce to representative of the U.S. population

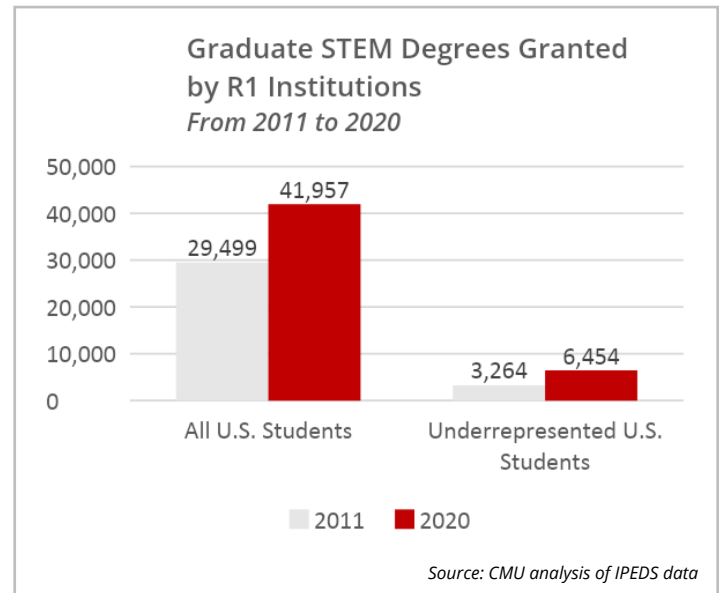
Source: National Science Foundation

- Members of underrepresented minorities are more than 28% of the U.S. workforce population but represent just 15% of the U.S. science and engineering workforce, according to the [2020 NSF Science & Engineering Indicators](#).

- First-generation undergraduate students are 20% less likely to pursue a graduate degree, according to the [Pew Research Center](#). Just 3% of first-generation, undergraduate degree recipients pursue doctoral studies, according to the Council of Graduate Schools.

EDUCATING THE NEXT GENERATION OF STEM LEADERS

- Despite decades of effort, enrollment of underrepresented students in STEM graduate programs remains low across R1 institutions.
- While the number of STEM graduate degrees granted to overall and underrepresented U.S. students has increased in the past decade, the number of degrees for underrepresented students continues to be far below their share of the population, according to CMU's analysis of Integrated Postsecondary Education Data System (IPEDS) Completions Data.
- 36% of the college-aged population identify as Black or Hispanic, but represent just 18.4% of domestic STEM graduate students.
- Underrepresented and underresourced students cite cost and undergraduate debt as key reasons they do not pursue graduate education.
- First-generation doctoral students hold undergraduate loans at a higher rate than continuing generation students (47% vs. 31%), according to the Council of Graduate Schools. Of those students, the average undergraduate loan remaining was 65% higher for first-generation students.



WHAT IS THE CMU RALES FELLOWS PROGRAM?

The CMU Rales Fellows Program will directly address the Missing Millions through increased access by eliminating cost as a barrier to earning a graduate STEM degree.

The CMU Rales Fellows Program is a graduate fellowship program dedicated to developing a new generation of domestic national STEM leaders who, through their leadership, determination and innovation, aspire to work toward advancements in the sciences to further human progress while inspiring and building a path for others to follow.

- The CMU Rales Fellows Program provides students with full tuition as well as a stipend to cover living expenses, housing and health insurance.
- Fellows also will benefit from an ecosystem of holistic opportunities to ensure their success as they work to develop into future STEM leaders, including comprehensive, cohort-based onboarding; dedicated career services; faculty mentoring; programs to build their personal networks; and opportunities to build leadership skills in local and global communities.
- Intended participants will be candidates from underresourced or low-socioeconomic status backgrounds, first-generation college students, graduates of minority serving institutions and other groups who remain underrepresented in STEM.
- The Norman and Ruth Rales Foundation will provide an endowment of \$110 million to support the program, and CMU has committed a further \$30 million in endowed funds. The two organizations also are jointly establishing a \$10 million fund to support the program's developmental years. The total program investment is \$150 million.
- At steady state, the CMU Rales Fellows Program expects to support 86 fellows in M.S. and Ph.D. programs annually. The first cohort will be welcomed in fall 2024.