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Quantum
Index Report
2025

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▶ How to cite this report

Ruane, J., Kiesow, E., Galatsanos, J., Dukatz, C., Blomquist, E., Shukla, P., "The Quantum Index Report 2025", MIT Initiative on the Digital Economy, Massachusetts Institute of Technology, Cambridge, MA, May 2025.

▶ Interactive website and public data

The Quantum Index Report 2025 is accompanied with interactive tools available on our website (qir.mit.edu) and we share our raw data with the community available to download from our website (qir.mit.edu/data).

In memory of Shawneric Hachey, whose unique talent and dedication shaped the way this project is presented today.

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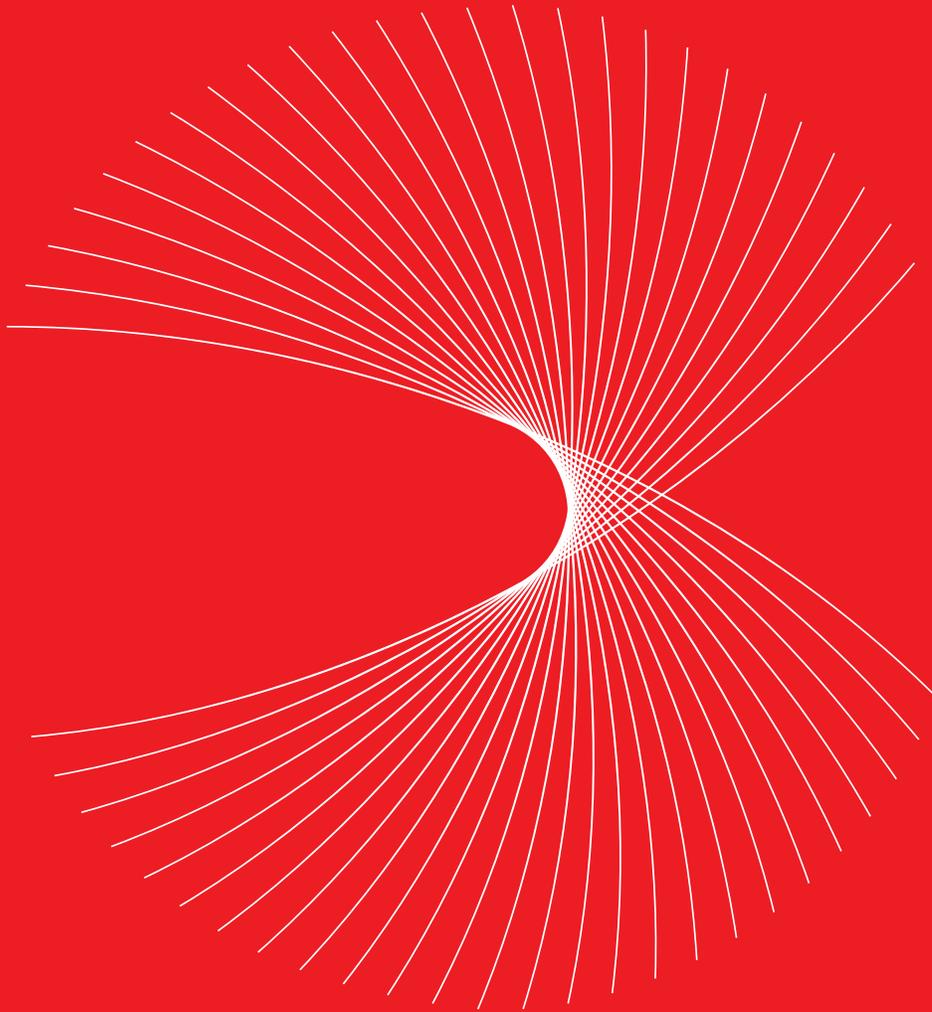Accenture

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8 | Public Opinion

To better understand public perceptions and understanding of quantum technologies, we conducted a survey of US residents in October 2024. The survey instrument was administered to a representative panel of 1,375 US residents, with demographic sampling aligned to the US Census Bureau distributions for both gender and age groups, ensuring population representativeness. The survey was aimed at capturing attitudes, awareness levels, and expectations surrounding this emerging field. As quantum technologies transition from research laboratories to practical applications, public engagement and trust will play a critical role in shaping adoption and policy.

8.1 | Quantum computing

8.1.1. Familiarity

When asked about the familiarity levels on quantum computing, from the 1,375 survey respondents, 25% responded they were "not at all familiar," 15% said "not so familiar," 26% indicated they were "somewhat familiar," 18% claimed to be "very familiar," and 16% reported being "extremely familiar."

How familiar are you with quantum computing?
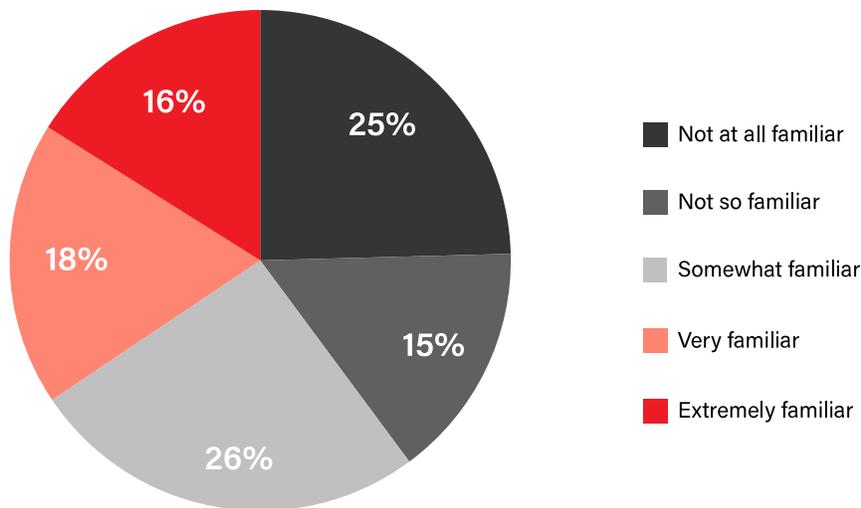
The survey reveals a diverse distribution of familiarity with quantum computing. The largest segment consists of those who are "somewhat familiar" with the topic, representing 26% of respondents. Interestingly, this moderate level of awareness is bordered by another substantial group: those with advanced familiarity represented with 34%.

> ▶ Our survey data indicates that quantum computing awareness tends to cluster at either end of the spectrum; either people have had minimal exposure or have invested significant time in understanding the technology.

Breaking down the responses further reveals that among those with limited familiarity, there's a notable distinction between those who are "not at all familiar" (25%) and those who are "not so familiar" (15%), suggesting that complete unfamiliarity is more common than partial unfamiliarity. Conversely, among those with higher levels of familiarity, there's a relatively even split between "very familiar" (18%) and "extremely familiar" (16%) respondents. This bimodal distribution indicates that quantum computing awareness tends to cluster at either end of the spectrum—people either have minimal exposure or have invested significant time in understanding the subject.

These findings might indicate an alignment with broader technological adoption patterns, particularly in emerging technologies. The presence of a large "somewhat familiar" group (26%) represents a crucial middle ground, potentially indicating recent exposure to quantum computing through media coverage or educational initiatives. This distribution suggests that quantum computing is entering mainstream discourse while indicating the importance of ongoing opportunities for education and awareness-building.[1]

8.1.2. Emotional repsonses

Among the 1,375 survey respondents, the emotional responses varied considerably across different potential quantum computing applications. When asked to report on to what extent they feel nervous or excited regarding potential uses of quantum computing, for materials and pharmaceuticals development, 7% felt very nervous, 11% somewhat nervous, 29% neutral, 27% somewhat excited, and 26% very excited. Regarding optimization, 7% expressed very nervous feelings, 11% somewhat nervous, 31% neutral, 24% somewhat excited, and 27% very excited. For data security and cryptography, responses showed 11% very nervous, 13% somewhat nervous, 30% neutral, 20% somewhat excited, and 26% very excited.

Quantum computing can be potentially used for different areas. To what extent do you feel nervous or excited regarding the potential uses listed below?

Discovery of new materials
(new materials and pharmaceuticals)

Optimization
(improving the efficiency)

Data security and cryptography

■ Very nervous ■ Somewhat nervous ■ Neither nervous nor excited ■ Somewhat excited ■ Very excited
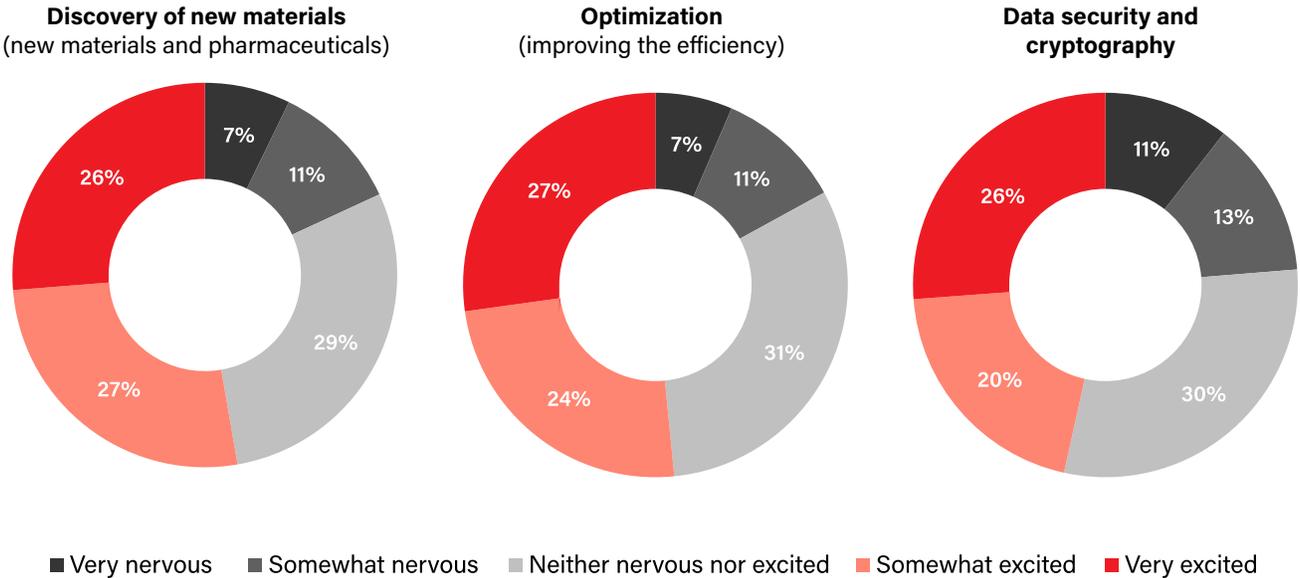
The survey reveals the patterns in how the general public perceive different applications of quantum computing, with clear distinctions in emotional responses across various domains. Overall, across all applications, approximately half of respondents express excitement, while about one-fifth report feeling nervous, and nearly a third remain neutral.

▶ These responses suggest a generally positive outlook toward quantum computing's potential applications, though with notable variations depending on the specific use case.

Graph below compares and contrasts the number of positive and negative answers
(neutral answers are not represented in this graph)

Discovery of new materials and pharmaceuticals

Excited	Nervous

Optimization

Excited	Nervous

Data security and cryptography

Excited	Nervous

The application of quantum computing to **materials and pharmaceutical discovery**
elicits the most enthusiastic response, with 53% of respondents expressing excitement
and only 18% feeling nervous. This high level of enthusiasm aligns with the potential
transformative impact of quantum computing in drug discovery and materials science,
where breakthroughs could lead to improvements in human health and societal
advancement.

In contrast, **optimization** applications show slightly lower overall excitement (51%) and
similar levels of responses expressing nervousness (18%), suggesting broad acceptance
of quantum computing's role in improving complex systems.

Data security and cryptography stands out as the most controversial application,
generating significantly higher anxiety levels (24% nervous) while maintaining
substantial excitement (46%). This heightened concern might reflect public awareness

of the dual nature of quantum computing in cryptography, such as its potential to break current encryption methods while simultaneously enabling new, quantum-resistant cryptographic solutions. The emotional responses around this application might suggest that the respondents recognize both the risks and opportunities quantum computing presents to digital security.

Across all three potential applications, approximately 30% of respondents maintain neutral positions, indicating either uncertainty about the implications or a wait-and-see attitude toward these emerging technologies. This consistent neutrality rate suggests widespread recognition that quantum computing represents a complex technology whose ultimate societal impact remains uncertain for the general public. The relatively stable neutral percentage across different applications contrasts with the varying levels of excitement and nervousness, suggesting that while people form distinct opinions about specific applications, many remain cautious about making definitive judgments.

Comparative analysis reveals that while excitement levels remain consistently high across all applications (ranging from 46% to 53%), nervousness varies from 18% to 24%. This pattern might suggest that while Americans generally welcome quantum computing's potential benefits, their comfort levels vary significantly depending on the specific domain of application.

▶ Public acceptance of quantum computing may depend heavily on how its applications are framed and communicated, with practical applications like materials discovery receiving more universal enthusiasm compared to security-related applications that raise broader societal concerns.

8.2 | Quantum networking

8.2.1. Familiarity

When asked about the familiarity levels on quantum networking, from the 1,375 survey respondents, 28% reported being "not at all familiar" with quantum networking, 18% said they were "not so familiar," 20% indicated they were "somewhat familiar," 18% claimed to be "very familiar," and 16% reported being "extremely familiar" with the technology.

How familiar are you with quantum networking?

- Not at all familiar
- Not so familiar
- Somewhat familiar
- Very familiar
- Extremely familiar
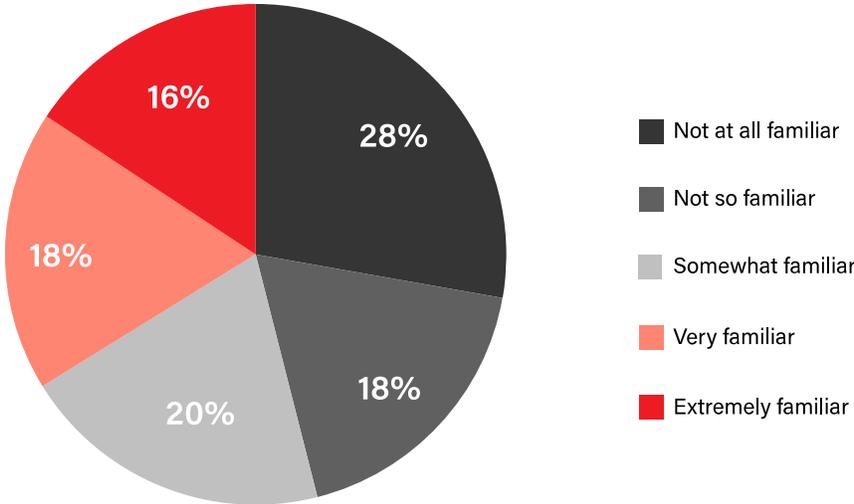
Nearly half (46%) of respondents reported basic or no familiarity with quantum networking. This level of basic familiarity is particularly notable, as it represents the largest single segment of responses. The distribution shows a clear progression, with 20% reporting "somewhat familiar," 18% "very familiar," and 16% "extremely familiar," resulting in a combined 34% advanced familiarity.
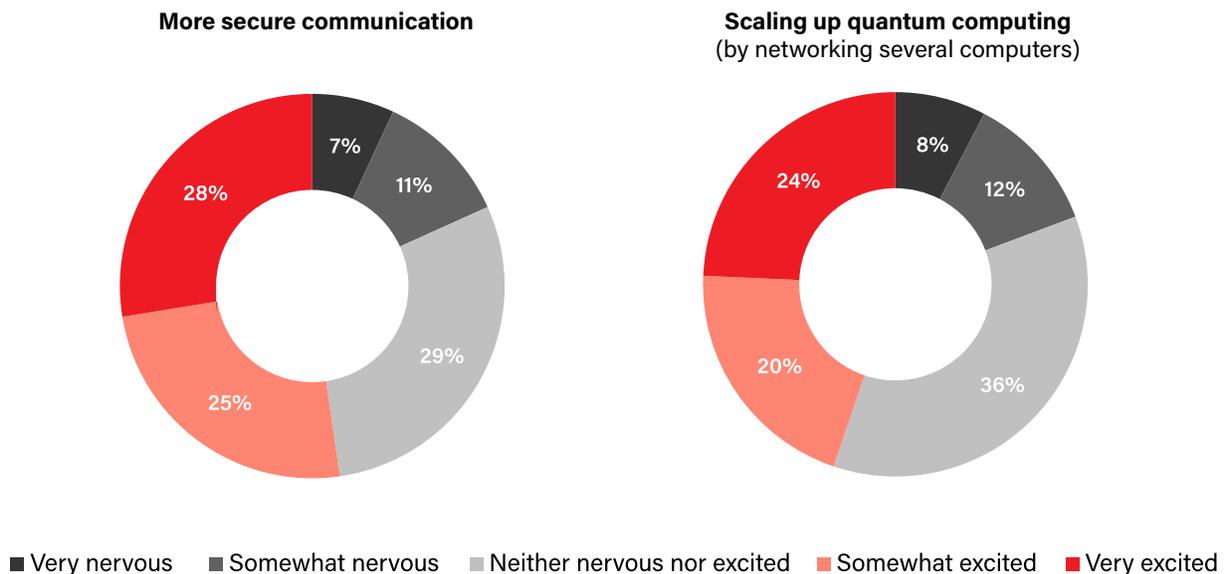
The relatively balanced distribution between basic and advanced familiarity levels suggests that quantum networking awareness is developing in a structured way. While the largest segment remains those with minimal familiarity, the substantial proportion of advanced familiarity (34%) might be an indication of stronger engagement from technical communities and the quantum-curious.

When asked about quantum computing, 25% of the respondents reported being "not at all familiar" and 15% indicated they were "not so familiar." In contrast, quantum networking showed higher rates of unfamiliarity, with 28% reporting "not at all familiar" and 18% stating they were "not so familiar." This pattern indicates quantum networking faces greater challenges in basic public awareness than quantum computing.

8.2.2. Emotional responses

Among the 1,375 survey respondents, the emotional responses varied across different potential uses of quantum networking. When asked to report on to what extent they feel nervous or excited regarding potential uses of quantum networking for its relevance to secure communication: 7% of the respondents reported very nervous, 11% somewhat nervous, 29% neither nervous nor excited, 25% somewhat excited, and 28% very excited. For its relevance to scale up quantum computing by networking: 8% of the respondents reported very nervous, 12% somewhat nervous, 36% neither nervous nor excited, 20% somewhat excited, and 24% very excited.

Quantum networking can be potentially used for different areas. To what extent do you feel nervous or excited regarding the potential uses listed below?

More secure communication

7%
11%
29%
25%
28%

Scaling up quantum computing
(by networking several computers)

8%
12%
36%
20%
24%

■ Very nervous   ■ Somewhat nervous   ■ Neither nervous nor excited   ■ Somewhat excited   ■ Very excited

The overall sentiment analysis reveals a generally positive outlook toward both aspects of quantum networking. For secure communication, 53% of respondents expressed positive feelings (combining the answers stating "very excited" and "somewhat excited"), while 18% expressed negative feelings (combining the answers stating "very nervous" and "somewhat nervous"). For scaling quantum computing, 44% expressed positive feelings and 20% expressed negative feelings.

Graph below compares and contrasts the number of positive and negative answers (neutral answers are not represented in this graph)

More secure communication

Excited	Nervous

Scaling up quantum computing

Excited	Nervous

Comparing the two aspects reveals that although both show positive sentiment, secure communication generates stronger enthusiasm, with 9 percentage points more positive responses than scaling quantum computing.

▶ Survey data suggests that many Americans are cautiously optimistic about quantum networking, particularly regarding its potential for secure communication. The relatively high percentage of neutral responses indicates that many people are still learning about and forming opinions on this aspect of quantum technology.

8.3 | Governance

We asked the same 1,375 participants to report to what extent they agree or disagree with the following three statements: (1) the State can be trusted to exert effective control over organizations and companies using quantum technologies, (2) US government should fund the research and development of quantum technologies, and (3) US companies should fund the research and development of quantum technologies.

To what extent do you agree or disagree with the following statements:

State can be trusted to exert effective control over organizations & companies using quantum technologies

US government should fund the research and development of quantum technologies

US companies should fund the research and development of quantum technologies

■ Strongly disagree   ■ Somewhat disagree   ■ Neither agree nor disagree   ■ Somewhat agree   ■ Strongly agree

For the statement about state control over quantum technologies: 11% strongly disagree, 14% somewhat disagree, 33% neither agree nor disagree, 20% somewhat agree, and 22% strongly agree.

For government funding of quantum technologies: 7% strongly disagree, 9% somewhat disagree, 32% neither agree nor disagree, 25% somewhat agree, and 27% strongly agree.

For company funding of quantum technologies: 5% strongly disagree, 7% somewhat disagree, 32% neither agree nor disagree, 27% somewhat agree, and 29% strongly agree.

Graph below compares and contrasts the number of supporting (agreeing) and opposing (disagreeing) answers (neutral answers are not represented in this graph)

State can be trusted to exert effective control over organizations and companies using quantum technologies

Agree	Disagree

US government should fund the research and development of quantum technologies

Agree	Disagree

US companies should fund the research and development of quantum technologies

Agree	Disagree

The negative responses show variations across the statements. The state control statement received the highest negative response rate at 25%, followed by government funding at 16%, and company funding at 12%. This pattern suggests that Americans are most skeptical about government control over quantum technologies, while being more comfortable with private sector involvement.

The positive responses reveal particularly high levels of enthusiasm for company funding with 56% positive responses and government funding with 52% positive responses. The state control statement received significantly lower positive responses at 42%.

▶ The findings suggest that Americans generally support the development of quantum technologies but have nuanced views about how this development should be managed. While there is strong support for both government and private sector investment, there is more skepticism about state control over quantum technologies.

The high percentage of neutral responses across all statements (around one third) might also indicate that many Americans are still forming their opinions about the governance of quantum technologies, highlighting the need for more public education and dialogue about these issues.

8.4 | Future research

Repeating the survey in future years will enable us to track shifts in public awareness, sentiment, and understanding of quantum technologies over time. Longitudinal data will help identify emerging concerns, misconceptions, or areas where targeted communication and education may be needed. It will also offer valuable insights into societal readiness and trust. We invite readers of this report—whether from the public, academia, industry, or policy communities—to share their perspectives and suggest questions or themes you believe should be included in future surveys. Your input will help ensure this effort remains relevant, inclusive, and responsive to the broader community.

You can reach us at contact@qir.mit.edu.

▶ Footnotes

[1] 'U.S. Quantum Leadership May Hinge on Public Perceptions' (Brookings) <https://www.brookings.edu/articles/u-s-quantum-leadership-may-hinge-on-public-perceptions/> accessed 12 February 2025.

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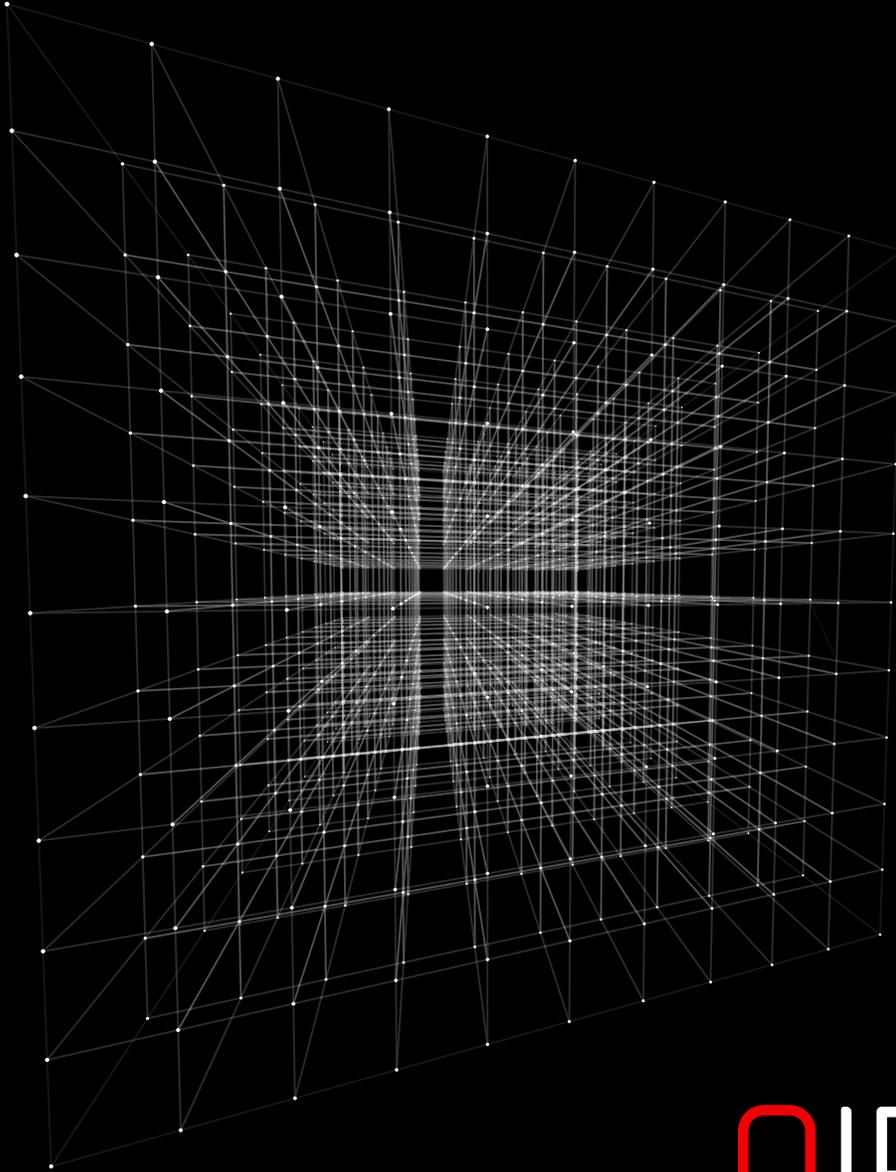
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11 | Appendix

preliminary search of keywords for online job postings and, analysis of doctoral thesis titles, abstracts, and keywords. Therefore we retrieved the student enrollment data for the relevant three degrees.

We used Electrical, Electronics, and Communications Engineering (141000 – Major Field Group CIP) enrollment data as a subcategory of Engineering; Physics degree (400800 – Major Field Group CIP) enrollment data as a subcategory of Physical Sciences; and Computer Science degree (110700 – Major Field Group CIP) enrollment data as a subcategory of Computer and Information Sciences and Support Services. The data categorization had challenges as the major field groups at times had interconnected degrees such as "Computer and Information Science, general", "Astronomy and Astrophysics" which are not included in the subject-level enrollment data. In order to provide a fuller picture, the report also presents the enrollment numbers for the three major field families Engineering, Physical Sciences, and Computer and Information Sciences and Support Services.

Chapter 8 | Public opinion

"Survey on Public Opinion" refers to a general population survey conducted online in October 2024 with US participants. The survey instrument was administered to a representative panel of 1,375 US residents, with demographic sampling aligned to US Census Bureau distributions for both gender and age groups, ensuring population representativeness. Data collection procedures followed established survey research protocols, with items grouped by thematic content to enhance respondent engagement and reduce cognitive load. The five-point scale format was selected to balance response sensitivity with participant comprehension, avoiding the potential ambiguity associated with finer-grained scales while still capturing meaningful variations in opinion intensity.

Each item was measured using a symmetric response format anchored by "Strongly Disagree" and "Strongly Agree," with intermediate positions of "Somewhat Disagree," "Neither Agree nor Disagree," and "Somewhat Agree." Regarding emotional response questions, the response format was anchored by "Very Nervous" and "Very Excited," with intermediate positions of "Somewhat Nervous," "Neither Nervous nor Excited" and "Somewhat Excited." This approach enabled precise quantification of attitudinal responses while maintaining respondent comprehension through clear, distinct categories. To better demonstrate the difference in responses, in the relevant chapter graphs were prepared to represent the ratio of "Agree" and "Disagree" responses as well as "Positive" and "Negative" emotional responses where the neutral answers were not represented. For the referred visualizations "Strongly Disagree" and "Somewhat Disagree" responses were grouped into the category "Disagree", and "Strongly Agree" and "Somewhat Agree" responses were grouped into the category "Agree". Utilizing the same approach, for the visualizations of positive and negative responses, "Very Nervous" and "Somewhat Nervous" responses were grouped into the category "Negative," and "Very Excited" and "Somewhat Excited" responses were grouped into the category "Positive."

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