



CSET CENTER *for* SECURITY *and*
EMERGING TECHNOLOGY

2024

ANNUAL REPORT



A policy research organization within Georgetown University's Walsh School of Foreign Service, the Center for Security and Emerging Technology provides decision-makers with data-driven analysis on the security implications of emerging technologies.

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CSET Culture Statement

CSET was formed to examine emerging technology through an evidence-based, data-driven approach independent of government, funder or ideological perspectives.

CSET staff come from a variety of backgrounds and disciplines, bringing a robust wealth of perspectives and experiences to inform research at the intersection of technology and national/international security. We are committed to fostering a diverse, equitable, and inclusive culture rooted in intellectual curiosity and respect.

At CSET, we:

- ✓ Challenge assumptions, follow the evidence, understand how data can inform decisions and formulate policies, and serve as trusted advisors to the national security community.
- ✓ Are lifelong learners who understand that intellectual humility is essential to ongoing growth. We seek and absorb feedback and actively work on self and organizational improvement.
- ✓ Celebrate individuality and encourage all team members to welcome one another to create a sense of belonging.
- ✓ Collaborate because we know that problems are best solved as a team.
- ✓ Are empowered to take agency in the workplace and participate in meaningful decision-making.
- ✓ Support and encourage open dialogue across all teams.
- ✓ Know that while our work is important, our individual and familial needs come first. We value our time outside of work, respect a healthy work/life balance, and support one another in times of need.
- ✓ Measure our success as a team.
- ✓ Place acting with integrity and respect above all.

Letter from the Executive Director



Dewey Murdick
Executive Director

Dear Friends of CSET,

As CSET enters its seventh year, I am struck by how far we've come since those early planning sessions in 2018. What began as a vision to bridge the gap between emerging technology and policy has grown into an organization that shapes critical conversations about the future of AI.

AI and its applications continue to reshape our security landscape, and the demand for CSET's data-driven mix of technical and policy expertise grows. In 2024, our researchers conducted hundreds of briefings with government officials and industry leaders, testified before Congress, and published over [80 pieces of analysis](#) and [dozens of translations](#). Our four most widely read pieces of research examined how [large language models](#) work, analyzed how [Project Maven](#) and the U.S. 18th Airborne Corps operationalized AI, explored [China's perspectives on AI warfare](#), and provided timely analysis of how [Huawei's AI chip development pushed the limits of U.S. export controls](#).

This year marked a significant evolution in how we engage with complex challenges in emerging technology policy. We broadened our network beyond U.S. government officials to include more

industry leaders, philanthropists, and regional policymakers, recognizing that technological advancement affects every sector of society.

This expanded engagement included [seminars](#) and workshops covering important topics from [AI agents](#) and [critical infrastructure](#) to public sector talent, and launched new [tools](#) and [datasets](#). Our [Building the Tech Coalition](#) conference proved particularly impactful, with one participant describing it as "the best and most uniquely hard-hitting defense AI event" they had attended.

In 2025, our research priorities are directed by rapidly evolving technological developments, while maintaining our commitment to rigorous, nonpartisan analysis. This is evidenced by our increased focus on AI applications in military and cybersecurity domains, expanded work on the technical aspects of securing AI, and continued analysis of AI workforce development.

None of this would be possible without our dedicated staff, supporters, and partners. Whether through reading our [policy.ai](#) newsletter, attending our events, or [supporting our work directly](#), you play a crucial role in helping CSET shape technology policy. Together, we can ensure that AI strengthens rather than compromises our security and prosperity.

Sincerely,

A handwritten signature in black ink that reads "Dewey Murdick". The signature is written in a cursive, flowing style.

CSET in the Media



Helen Toner

Director of Strategy and Foundational Research Grants

If you're driving down a road with unexpected twists and turns, then two things that will help you a lot are having a clear view out the windshield and an excellent steering system. In AI, this means having a clear picture of where the technology is and where it's going, and having plans in place for what to do in different scenarios.



Dewey Murdick
Executive Director



Owen J. Daniels
Associate Director of Analysis & Andrew W. Marshall Fellow

“America is locked in a battle for global leadership in AI, both in terms of creating cutting-edge technology and ensuring that developers build new models and applications safely for the good of society. Against this backdrop, determining how the U.S. governs, innovates, and competes globally in AI is critically important.”



Jacob Feldgoise
Data Research Analyst

“From one perspective, the semiconductor manufacturing companies are competing for limited amounts of government money but from another, the governments are competing for a limited amount of advanced fabrication capacity from the best in the business.”



Emelia S. Probasco
Senior Fellow

“I think we are already on a path to integrating AI, including generative AI, into the realm of decision-making in the military.”



Jack Corrigan
Senior Research Analyst

“The biggest risk of doubling-down on frontier models is that it could lead to path dependency, locking the United States into today’s costly AI development paradigm and reducing the chances that a more efficient approach will emerge — at least in America.”



Josh A. Goldstein
Research Fellow

“It could be that these social media accounts posting AI-generated content were nefarious pages that were trying to build an audience and would later pivot to trying to sell goods or link to ad-laden websites or maybe even change their topics to something political altogether. But I suspect more likely, many of these pages were simply creators who realized it was a useful tactic for getting audience engagement.”



Steph Batalis
Research Fellow

“Collecting better biological data, and running it through AI, might be the difference between managing a really small outbreak and letting it spread and become a much bigger problem.”

Highlights of 2024

2/1



Ngor Luong and Jack Corrigan testified before the U.S.-China Economic and Security Review Commission on emerging technologies' role in economic and national security competition between the U.S. and China.

2/23



Rebecca Gelles and Ronnie Kinoshita presented their paper (co-authored with James Dunham and Micah Musser) *"Is Compute the Binding Constraint on AI Research?"* at the 38th Annual AAAI Conference on Artificial Intelligence.

4/29



Assistant Secretary of Homeland Security for Cyber, Infrastructure, Risk, and Resilience Iranga Kahangama spoke at a CSET seminar on AI, cybersecurity, and critical infrastructure.

4/29



Olivia Albrighton-Vanway won the 2024 Georgetown University School of Foreign Service Excellence in DEI Award.

5/5



Steph Batalis spoke on biosecurity at the AI Expo for National Competitiveness.

6/13



During a trip to the Republic of Korea, Josh Goldstein spoke at Yonsei University and the National Assembly Futures Institute.

6/26

COMPANY	COUNTRY	AI PUBLICATIONS	AI PATENTS
Alphabet (Google)	United States	11,213	4,387
Microsoft	United States	10,706	4,146
IBM	United States	7,978	9,135
Facebook	China	4,915	10,489
Amazon	China	4,892	4,813
Alibaba	China	4,316	2,254
Netflix	United States	4,026	1,988
Twitter	United States	3,022	1,072

CSET launched PARAT, a data tool that allows users to explore private companies' AI activities, from startups to the S&P 500.

8/1



CSET hosted members of the President's Council of Advisors on Science and Technology, who discussed the Council's Report to the President: Strategy for Cyber-Physical Resilience.

8/11



Colin Shea-Blymyer won the Generative AI Red-Teaming Competition at DEF CON, the world's largest hacking convention.

8/22



Matthias Oschinski led a roundtable discussion as part of the Government AI Hire, Use, Buy Roundtable Series hosted by CSET, the Beeck Center, and the Institute for Technology Law and Policy.

8/29



CSET's Building the Tech Coalition conference featured distinguished speakers who discussed the military's application of AI, drawing on a CSET study of how the U.S. 18th Airborne Corps successfully operationalized software and AI.

9/5



Helen Toner was recognized by TIME100 AI 2024 as one of the most influential leaders in AI.

9/9



Igor Mikolic-Torreira joined a panel led by Emmy Probasco at the Responsible AI in the Military Domain Summit in Seoul. The panel discussed the responsible use of AI-enabled decision support systems in military decision-making.

9/17



Helen Toner testified on AI governance before the U.S. Senate Committee on the Judiciary.

9/18



Jaret Riddick was a panelist at the Aspen Cyber Summit. Jaret spoke on the state of cyber talent in the US and globally.

10/22



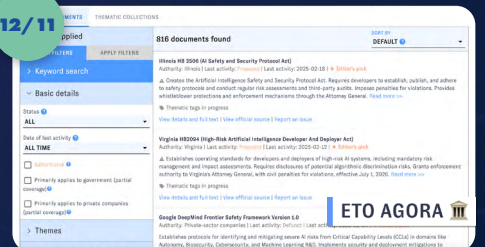
Hanna Dohmen spoke at a co-hosted CSET and IQT event on advanced microelectronics in national security.

11/29



Sam Bresnick testified before the U.S. Senate Committee on the Judiciary on economic and technological interdependence between U.S. technology companies and China.

12/11



CSET launched AGORA, a data tool to discover and analyze key developments in AI governance around the world.

Research

CSET conducts data-driven research on artificial intelligence, cybersecurity, and biotechnology, utilizing extensive data resources, expert translations, and in-depth subject matter knowledge to assess the benefits and risks of emerging technologies. Our work spans nine research areas, all underpinned by a focus on the security aspects of advanced technologies, recognizing how these technologies are increasingly interconnected – with advances in AI not only heightening bio and cyber risks, but also exposing AI systems and their data to potential misuse. In 2024, CSET achieved significant impact across multiple domains. Our research was cited widely, appearing everywhere from the journal *Nature* to the U.S.–China Commission’s annual report to Congress. Our experts provided crucial testimony to Congress, briefed numerous government agencies, and shaped policy discussions through extensive media engagement in outlets including *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *Nature*, *The Atlantic*, and *NPR*.

● AI Governance

CSET’s AI governance team helped shape the evolving landscape of AI policy, advancing practical frameworks for oversight and providing policymakers with actionable guidance for immediate implementation. Their influential research on leveraging existing authorities demonstrated how U.S. government agencies could address AI safety concerns using current legal tools, offering a pragmatic alternative to waiting for comprehensive federal regulations.

CSET’s Emerging Technology Observatory launched AGORA (AI GOVernance and Regulatory Archive), a comprehensive database of AI-relevant laws, regulations, and standards that has become an essential resource for researchers and policymakers worldwide. Their research reached diverse audiences through prominent publications in *Fortune*, *The Bulletin of the Atomic Scientists*, and *The Council on Foreign Relations*, among others, while their virtual event comparing U.S., European, and Chinese governance approaches drew hundreds of attendees. In 2025, the team is exploring how different stakeholders understand and implement AI governance across technical safety, regulations, and model diffusion controls.



● Applications

CSET's Applications team advanced understanding of how governments and allies can effectively deploy AI-enabled technologies for national security, delivering crucial insights into both military applications and commercial-security dynamics. They produced a report examining how commercial relationships between U.S. companies and China could affect corporate decision-making during potential conflicts. The paper was referenced in a Congressional hearing.



The team's case study of the 18th Airborne Corps' implementation of the Maven Smart System (MSS) provided valuable lessons for AI adoption that were enthusiastically embraced by both Pentagon and Congressional stakeholders. Their work on automation bias advanced understanding of human-machine interaction risks while suggesting practical approaches to AI risk management. Going forward, the team will explore Chinese military technology procurement and expand their analysis of AI decision support systems, while examining how various stakeholders shape the commercial space sector.

● Bio-Risk

CSET's Bio-Risk team emerged as a leading voice in AI-biotechnology policy intersection, producing analysis that directly influenced national security decision-making. Their work received multiple citations from the National Security Commission on Emerging Biotechnology and garnered praise for its practical policy applications. A landmark report analyzing China's prioritization of medical AI and biological data collection sparked high-level policy discussions, leading to briefings with the House Select Committee on the Chinese Communist Party, Senate Committee on Homeland Security & Governmental Affairs, and the State Department's International Security Advisory Board. The team's engagement across academic workshops and industry events helped shape the growing conversation around AI's role in biotechnology development and regulation.



● Compete

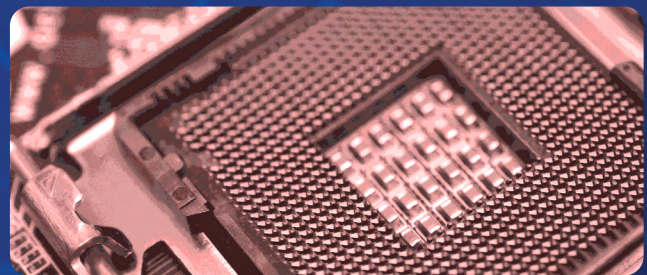
CSET's competition policy research shaped critical discussions around technological innovation and competitiveness, particularly in the semiconductor sector. Through a series of influential analyses and opinion pieces, the team provided essential insights into the effectiveness of U.S. export controls and China's semiconductor industry progress. Their comprehensive report on the Chinese Academy of Sciences offered novel perspectives on China's science and technology ecosystem, informing both Congressional and executive branch decision-making. The team's data-driven analysis of merger and acquisition trends in the AI sector proved especially valuable for competition policy discussions, while their work on supply chain dynamics continues to influence strategic planning around semiconductor manufacturing and distribution.

● CyberAI

CSET's CyberAI team advanced critical research on the opportunities and risks at the intersection of artificial intelligence and cybersecurity throughout 2024. Their workshop on highly capable AI agents brought together experts to examine the future of agentic systems, producing influential recommendations for governance frameworks and technical mitigations. A second major workshop convened critical infrastructure providers to assess AI integration in operational settings, resulting in practical guidance for risk management and framework alignment. Their expertise was further demonstrated through hands-on achievements, notably including a victory at DEF CON's Generative AI Red Team Challenge, which provided valuable insights into current security testing practices. In the coming year, the team will expand their AI security research as systems become increasingly capable and pose new threats to the cyber ecosystem.

● China AI

CSET continued to burnish its reputation as the leader in research on China's AI ecosystem. One influential report challenged conventional wisdom about the impact of U.S.-based scientists returning to China, while another demonstrated how China's distinct approach requires analysis on its own terms, showcasing innovative combinations of human expertise and data science methodologies. CSET's China-AI research reached broad audiences through extensive media engagement and presentations to government officials, peer organizations, and private sector leaders in the United States and abroad. In the coming year, the team will expand their AI security research as systems become increasingly capable and pose new threats to the cyber ecosystem.



● Data

Our Data team significantly expanded CSET's analytical capabilities, developing innovative methods for processing and analyzing information on emerging technologies. The team played an important role in producing some of CSET's most impactful work, including written publications and public project repositories, while advancing the field through presentations at major conferences including AAI, EMNLP, and Airflow Summit, among others. They continued their work on impactful long-term projects, from creating unique web-scraped datasets and improving author affiliation data to classifying research relevant to LLM development, cybersecurity, and chip design and fabrication.

● ETO

CSET's Emerging Technology Observatory (ETO) made significant strides, developing and deploying new tools for understanding technological development while substantially expanding its user base. The launch of **PARAT** and **AGORA**, alongside six new open datasets and an improved dataset portal, enhanced the accessibility of crucial technology policy data. ETO's work attracted tens of thousands of unique users and helped to grow its newsletter subscription base. The impact of ETO's resources was demonstrated through extensive citations in a number of prominent publications, including Stanford's AI Index, policy analyses from leading think tanks, and peer-reviewed research on topics ranging from AI climate impact to semiconductor manufacturing.

COMPANY	COUNTRY	AI PUBLICATIONS	AI PATENTS	AI JOBS

● FRG

The Foundational Research Grants (FRG) program worked to bridge gaps between technical realities and policy needs. In 2024 the FRG-funded nonprofit OpenMined facilitated a first-of-its-kind testing exercise between leading AI company Anthropic and the UK government, using new infrastructure that allows researchers and governments to scrutinize proprietary AI models without compromising privacy, security, or intellectual property. The FRG team also worked to facilitate and convene conversations on pivotal topics, co-hosting a significant workshop on AI agents that produced an incisive and influential report. To close the year, FRG selected a new cohort of grantees whose projects will expand the toolkit available to the AI developers making critical decisions about how to release frontier models.

● Workforce

CSET's Workforce team advanced critical research on global technology talent flows and workforce development, delivering data-driven insights to inform education, immigration, and training policies. They launched a partnership with the Information and Communications Technology Council of Canada to analyze workforce needs in the expanding U.S. semiconductor industry, examining talent pipelines and training requirements to inform CHIPS Act implementation. The team developed a groundbreaking cybersecurity workforce dataset drawing from over 513 million LinkedIn profiles, providing unprecedented insight into labor market dynamics. Their analysis of STEM degree designations, conducted in collaboration with leading immigration policy organizations, helped shape Department of Homeland Security policies affecting America's technical workforce. Looking ahead, the team will develop new tools for analyzing regional workforce trends while exploring novel pathways like AI apprenticeships.

● policy.ai

CSET's monthly newsletter breaks down the latest news in AI and emerging tech policy, from the latest AI model releases and the performance of open-source LLMs to the implications of the Commerce Department's high-end chip export controls and EU tech regulation. Buoyed by the continued public interest in AI, policy.ai had another year of excellent growth, eclipsing 12,000 subscribers and more than 100,000 views across 11 editions in 2024. Sign up to receive the CSET newsletter at policy.ai.

policy.ai

A monthly newsletter on artificial intelligence, emerging technology and security policy

Sign Up!



Researcher Spotlight



Sam Bresnick
Research Fellow

Research Fellow Sam Bresnick is an expert on military AI applications and Chinese technology policy. In 2024, his analysis of China's AI capabilities and challenges was featured in [Foreign Affairs](#), [Foreign Policy](#), and [Lawfare](#), and he was quoted in major news outlets, including *The Associated Press*, *Reuters*, and *Politico*.

Bresnick's research portfolio includes several influential reports examining China's technological and military landscape. His report, "[China's Military AI Roadblocks](#)," revealed significant technological obstacles Beijing faces in developing AI-enabled military systems, while "[Which Ties Will Bind?](#)" examined how U.S. tech companies' deep business ties to China could affect their decision-making during international conflict.

He also co-authored "[Fueling China's Innovation](#)," which provided an in-depth analysis of the Chinese Academy of Sciences' crucial role in advancing Beijing's science and technology objectives.



In November 2024, Bresnick testified before the U.S. Senate Judiciary Subcommittee on Privacy, Technology, and the Law, where he addressed national security concerns regarding U.S.-China technological interdependence. "[Which Ties Will Bind?](#)" featured extensively during the hearing and was quoted at length.

Inaugural Summer Internship



In 2024, CSET launched its [inaugural summer internship class](#). Students from HBCUs and other Minority-Serving Institutions participated in an intensive, in-person, nine-week program. Each student conducted an independent research project during the internship, producing a capstone analysis product that was published on the CSET website. The interns also participated in professional development sessions, conducted simulated policymaker briefings, and met with leaders in DC.

The CSET internship program reflects our mission to prepare a new generation of decision-makers to address the challenges and opportunities of emerging technologies. By providing hands-on experience to students from underrepresented backgrounds, CSET is helping to shape a future where diverse voices contribute to critical technology policy decisions.



Jordan Monts

CSET Intern

“I feel that CSET has prepared me for my professional future in many ways, the main one being exposure to possible career choices that aren’t in the direct path of our schooling program. I would have never thought policy and computer science would go together.”

Donors

CSET is a philanthropically-funded organization. We rely on the support of organizations and individuals to achieve our mission of providing decision-makers with data-driven analysis on the security implications of emerging technologies.

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