# Summary of Quad AI: Assessing AI-related Collaboration Between the United States, Australia, India, and Japan

The Quadrilateral Security Dialogue—composed of the United States, Australia, India, and Japan—is committed to strengthening shared democratic values through technological cooperation as a counter to China's techno-authoritarian model. **This report assesses trends in AI-related research collaboration and investment activity across the Quad to better understand the state of technology cooperation between these four countries as well as their respective linkages to China.**

**All Quad states are global leaders in AI-related research and investment.**
- All are among the top 10 AI research producers, generating more papers than the European Union and the Association of Southeast Asian Nations combined.
- All have burgeoning ecosystems of AI companies and robust investment communities that fund opportunities both domestically and internationally.

**Each Quad country has relative strengths in AI research that can be leveraged for joint research opportunities.**
- Japan stands out in simulation and human-computer interaction, India in data mining and data science, Australia in linguistics and theoretical computer science, and the United States in machine learning and natural language processing.

**While Australia, India, and Japan have extensive AI-related research partnerships and investment ties with the United States, the three Indo-Pacific countries collaborate much less with one another.**
- 22 percent of India's internationally co-authored papers were with counterparts from the United States, as were 19 percent of Australia's and Japan's. In contrast, the collaboration rates between AI researchers from Australia, India and Japan were less than 4 percent.
- The United States is the top foreign investor in Australian, Indian, and Japanese AI companies, but there is little AI-related investment activity among the three Indo-Pacific Quad countries.

**Despite increasing tensions, each of the Quad countries has varying but fruitful AI research and investment relationships with China.**

- China is the top AI research partner for the United States, and research cooperation between the United States and China outweighs U.S. research collaboration with the rest of its Quad partners taken together.
- The United States is the largest foreign investor in Chinese AI companies, while China is the second largest foreign investor in American AI companies.
- In both AI-related research and investment activity, Australia, India, and Japan have stronger ties with China than they do with one another.

**AI collaboration across the Quad should focus on moving away from a hub-spoke model with the United States at the center to one that strengthens ties between all of its members.** To reach its full potential in technology cooperation and decrease dependency on Chinese technologies, the Quad countries should consider opportunities to:

- Undertake joint projects that leverage partners' AI strengths to tackle collective challenges, such as climate change or disaster management;
- Advance research collaboration on privacy-preserving AI techniques to offset concerns related to privacy and data governance;
- Introduce targeted reforms to attract capital and reduce barriers to foreign investment in each others' technology sectors; and,
- Coordinate on multilateral protective measures such as export controls and investment screening regimes.

**For more information:**

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