nature
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AI and robotics

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It is well known that research in artificial intelligence (AI) and robotics is on a steep upward trajectory, but the latest numbers from the Nature Index put the growth rate beyond doubt. In just two years, the number of articles in the 82 high-quality natural-science journals tracked by the Nature Index linked to these topics has gone from fewer than 4,000 in 2019 to approaching 7,000 in 2021. Using the Nature Index metric of Share*, which uses fractional counting of author affiliations, the data are even more dramatic. Both China and South Korea have increased their Share by more than 1,100% from 2015 to 2021, although the United States is still the clear leader overall.

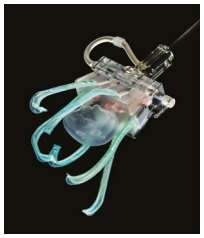
Such growth, and the way it is representing an ever-increasing proportion of institutions' Nature Index output, shows how this pervasive technology is crossing disciplinary boundaries as researchers seek ways to use its advantages. In this supplement, we take a closer look how AI and robotics are making advancement possible, from environmental science to the humanities (see page S6), as well as having immediate real-world impact in areas such as clinical medicine (see page S10). We also look at how interdisciplinary approaches are prompting researchers to rethink AI and robotics itself, particularly by drawing inspiration from the natural world (see page S18).

But controversy lurks when dealing with emerging technologies, in part owing to concerns about the role being played by commercial organizations. Despite the huge influence wielded by tech firms, and their ability to attract top talent from academia, their footprint in the Index is still modest. It is bound to raise concerns about whether there is enough openness about the AI tools and techniques that are transforming society (see page S26).

There are also continuing concerns about whether cutting-edge developments in AI and robotics are benefiting people from all walks of life; we speak to one researcher drawing attention to how rural communities risk being left out of AI advancements (see page S17).

Simon Baker
Chief editor, Nature Index

**Nature Index's signature metric Share, used in this supplement, is a fractional count for an article allocated to an institution, city or country/region, that accounts for the proportion of authors on the article whose institutional affiliation is with that institution or location. Adjusted Share accounts for the small annual variation in the total number of articles in the Nature Index journals. We point out that the Nature Index provides just one indicator of research performance, and many other factors must be taken into account when assessing the quality of research or institutions.*



On the cover: Ultra-gentle robot and jellyfish.
Credit: Anand Varma

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