CSET CENTER for SECURITY and EMERGING TECHNOLOGY

Key Takeaways for "Bibliometric Analysis of China's Non-Therapeutic Brain-Computer Interface Research"

Chinese universities, laboratories, and technology companies are fulfilling state plans to develop advanced brain-computer interfaces (BCI).

- China's BCI research dates from before the turn of the century. Its invasive, non-invasive, and minimally invasive technologies today are at the world-class level.
- While much of this work addresses neuropathology, Chinese BCI researchers and their funding organizations also see cognitive augmentation as a primary goal.
- The BCI research is part of a broader plan, described in Chinese ministry documents, to "merge" human and machine intelligence in both metaphorical and literal senses.

China's BCI program has the potential to confer strategic advantages through enhanced productivity and hands-free management of computational devices and equipment.

- Advances in materials, placement strategies, and machine learning—all focused topics of Chinese research—are opening a path to more widespread use of BCI.
- Chinese research covers a wide spectrum of methods and intended uses, with special emphasis on signal processing and on detection of emotional and cognitive states.
- While working toward near-term practical implementations, top Chinese BCI scientists are in broad agreement with the longer-term goal of transforming cognition itself.
- China's research does not depend on direct collaboration with foreign institutions; in fact, overt reliance on foreign partnerships may be decreasing.

The study, a joint effort by CSET and King's College London, uses bibliometric analysis of Chinese technical documents and expert assessments of content to draw its conclusions.

- The study's bibliometric findings on China's BCI infrastructure align closely with data mined independently from online sources and China's own tally of leading researchers.
- The methodology used in the study—an extension of non-proprietary practices honed over two decades—is laid out in detail for replication and transparency.
- Conditioned data derived from the study are being merged with information from other CSET products on Chinese AI-brain research to support downstream analysis.

For more information:

- Download the report: https://cset.georgetown.edu/publication/bibliometric-analysis-of-chinas-non-therapeutic-brain-computer-interface-research/
- Contact us: cset@georgetown.edu