CSET CENTER *for* SECURITY *and* EMERGING TECHNOLOGY

Summary of “Downrange: A Survey of China’s Cyber Ranges”

The Chinese government, in partnership with industry and academia, is rapidly building cyber ranges as part of a broad effort to bolster its hacking and cybersecurity capabilities and capacity. Cyber ranges are virtual, interactive environments that may include software and/or hardware components. They are used for a multitude of purposes such as academic research and training. Cyber ranges are also used to enable developers and operators to build and test new attack and defense tools and methodologies.

Of China’s 34 provinces, 19 are building or have built cyber ranges. This report examines five of the 19 cyber ranges with demonstrated ties to the People’s Liberation Army (PLA) or security services. Among other purposes, these ranges have been used to:

- **Facilitate joint exercises among the PLA and civilians**, including representatives from private cybersecurity firms and critical infrastructure operators.
- **Practice attacking and defending critical infrastructure systems**, including space assets, water treatment plants, and transportation networks.
- **Support cyber competitions and talent development**.
- **Research software vulnerabilities and explore artificial intelligence’s applications to cybersecurity using supercomputing capabilities.**

These cyber ranges will enhance China’s cybersecurity as well as its offensive capabilities and capacities, bringing China closer to peer status with the United States. The U.S. government should pay particular attention to the ranges with industrial control systems capabilities, since offensive tools and techniques could be applied against U.S. systems in any future conflict. Previous CSET research demonstrated that industrial networks can be recreated from stolen data. Further, analysts should monitor the research published by affiliates of these institutions, as they may shed light on the development of technologies of interest.

For more information:

- Download the report: https://cset.georgetown.edu/publication/downrange-a-survey-of-chinas-cyber-ranges
- Contact us: Dakota Cary (dakota.cary@georgetown.edu).