



RYAN CLARKE, XIAOXU SEAN LIN, LJ EADS

# Enumerating, Targeting and Collapsing the Chinese Communist Party's NeuroStrike Program

## Aggregating Intelligence Fragments and the Power of Network Graphs



## **Table of Contents**

**NeuroStrike is a Fundamental Chinese Communist Party Focus | pp. 3-4**

**Academy of Military Medical Sciences (AMMS) – A Key Research and Development Zone for NeuroStrike | pp. 4-5**

**CCP’s ‘Three Warfares’ Strategy and the Role of the PLA Strategic Support Force (PLASSF) | pp. 5-7**

**Current Indo-Pacific Case Studies: Hong Kong, Taiwan, Whitsun Reef, and India | pp. 7-9**

**Next Phase of the Three Warfares Strategy and NeuroStrike: PLASSF as a Force Multiplier? | pp. 9-10**

**Converting Knowledge into Precision Targeting: Generating Executable Options with Anticipated Strategic Effects to Collapse the CCP NeuroStrike Program | pp. 10**

**Negate Information Asymmetries, Make Involvement in the CCP NeuroStrike Program a High-Risk Venture | pp. 11**

## NeuroStrike is a Fundamental Chinese Communist Party Focus

Unknown to many, the Chinese Communist Party (CCP) and its People's Liberation Army (PLA) have established themselves as world leaders in the development of NeuroStrike weapons. These platforms directly attack, or even control, mammalian brains (including humans) with microwave/directed energy weapons via standalone platforms (i.e., handheld gun) or the broader electromagnetic spectrum.<sup>1</sup> NeuroStrike, as defined by McCreight, refers to the engineered targeting of warfighter and civilian brains using distinct non-kinetic technology to impair cognition, reduce situational awareness, inflict long term neurological degradation and fog normal cognitive functions.<sup>2</sup> The CCP views NeuroStrike and psychological warfare as a core component of its asymmetric warfare strategy against the United States and its Allies in the Indo-Pacific.

NeuroStrike is part of the CCP's standard order of battle; not an unconventional set of capabilities only to be used under extreme circumstances. This represents a fundamental difference in strategic thinking regarding these domains in Beijing. This is not a hypothetical point. There was a sharp statistical increase in Chinese military activity in the South China Sea, East China Sea, Taiwan Straits, and along the Sino-Indian border during the most acute phases of the COVID-19 outbreak in 2020 and 2021.<sup>3</sup>

However, the CCP's weaponization of neuroscience extends well beyond the scope and understanding of classical microwave weapons. Their new landscape of NeuroStrike development includes using massively distributed human-computer interfaces to control entire populations as well as a range of weapons designed to cause cognitive damage.<sup>4</sup> These

---

<sup>1</sup> For empirical examples of such research, please see Yanyun Lin, et. al., 'Effects of Long-Term Exposure to L-Band High-Power Microwave on the Brain Function of Male Mice', *BioMed Research International*, Volume 2021, Article ID 2237370.

Wei-Jia Zhi, et. al., 'Recent advances in the effects of microwave radiation on brains', *Military Medical Research*, Volume 4, No. 29, 2017.

Mark Hodge, 'Inside China's terrifying 'brain control weapons' capable of 'paralyzing enemies'', *The Sun*, 31 December 2021.

Ryan Morgan, 'China creating 'brain-control weapons' and weaponizing biotech, US says', *American Military News*, 17 December 2021.

Similar research is also being conducted in Russia. Please see A.V. Kereya, et. al., 'Laboratory Mice are Stressed After Exposure to Nanosecond Repetitive Pulsed Microwaves', *ИЗВЕСТИЯ ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЙ – ФИЗИКА*, Vol. 59, No. 9/2, 2016.

A.V. Kereya, et. al., 'Some biological reactions of the organism after exposure to nanosecond repetitive pulsed microwaves', 6th International Congress 'Energy Fluxes and Radiation Effects', *IOP Conf. Series: Journal of Physics*, Conference Series 1115, 2018.

<sup>2</sup> Robert McCreight, 'Neuro-Cognitive Warfare: Inflicting Strategic Impact via Non-Kinetic Threat', *Small Wars Journal*, 16 September 2022.

<sup>3</sup> For more in-depth discussions and empirical examples, please see Ryan Clarke, 'Is China Converting COVID-19 Into a Strategic Opportunity?'. EAI Background Brief No. 1545, East Asian Institute, National University of Singapore, 9 July 2020.

Ryan Clarke, 'China-India Border Conflicts: Geopolitical and Environmental Drivers and New Partnership Modalities', EAI Background Brief No. 1554, East Asian Institute, National University of Singapore, 27 August 2020.

<sup>4</sup> For more in-depth Chinese discussions on psychological warfare, please see Tianliang Xiao [肖天亮], eds., *The Science of Military Strategy* [战略学]. PLA National Defence University Press, Beijing, 2015.

research programs are not obscure ‘moonshots’; they are core strategic focus areas that are designed to be utilized over the near-term and within current state strategic circumstances, such as in Taiwan. Any breakthrough in this research would provide unprecedented tools for the CCP to forcibly establish a new world order, which has been Xi Jinping’s lifelong goal.

For example, these capabilities can ‘fit’ into the CCP’s anti-access/area denial strategy in the Indo-Pacific. Imagine (at least partially) immunized PLA troops being inserted into a geography where a specific weaponized bacterial strain has been released prior to their entry to prepare the ground and eliminate points of resistance. Any remaining sources of resistance on the ground are then dealt with through CCP NeuroStrike weaponry that instill intense fear and/or other forms of cognitive incoherence resulting in inaction.

The net result of such a scenario would be the PLA establishing absolute control over a geography such as Taiwan while simultaneously blunting any American strategic options to intervene and physically insert personnel into the theater. This would effectively negate and render inert America’s overwhelming conventional superiority with very few (if any) near-term remedies. This scenario is based on known existing CCP research programs and what the clear strategic aims of those programs are.

### **Academy of Military Medical Sciences (AMMS) – A Key Research and Development Zone for NeuroStrike**

AMMS is the highest ‘medical research’ institution of the PLA. Founded in Shanghai in August 1951, the AMMS relocated to Beijing in 1958. In November 1961, the executive meeting of the Central Military Commission (CMC) decided that the AMMS should exercise operational authority (as opposed to solely research) and in 1970 this authority was made

---

Jieming Wu [吴杰明] and Zhifu Liu [刘志富], *An Introduction to Public Opinion Warfare, Psychological Warfare, [and] Legal Warfare* [舆论战心理战法律战概论], PLA National Defence University Press, Beijing, 2014.

Academy of Military Science Military Strategy Research Department [军事科学院军事战略研究部], eds., *The Science of Military Strategy* [战略学]. Military Science Press, Beijing, 2013.

Baocun Wang and Fei Li, “Information Warfare,” *Liberation Army Daily by Federation of American Scientists*, June 1995.

For more in-depth international discussions on Chinese psychological warfare, please see Kerry Gershanek, *Political Warfare: Strategies for Combatting China’s Plan to “Win without Fighting”*, Marine Corps University Press, 2020.

Michael Clarke, “China’s Application of the ‘Three Warfares’ in the South China Sea and Xinjiang”, *Orbis*, January 2019.

Matthew Brazil and Peter Mattis, *Chinese Communist Espionage: An Intelligence Primer*, Naval Institute Press, 2019.

Doug Livermore, “China’s “Three Warfares” In Theory and Practice in the South China Sea”, *Georgetown Security Studies Review*, 25 March 2018.

Jason Fritz, *China’s Cyber Warfare: The Evolution of Strategic Doctrine*, Lexington Books, 2017.

Elsa Kania, “The PLA’s Latest Strategic Thinking on the Three Warfares”, *China Brief*, Vol. 16, Iss. 13, 22 August 2016.

United States Department of Defence, “Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2011”, 2011.

For an authoritative discussion on Soviet methods of psychological warfare that formed the foundation of China’s own capabilities, please see Tomas Schuman (Yuri Bezmenov), *Bezmenov World Thought Police*, Facsimile Publisher, 1986.

permanent by the CMC. In August 2003, the PLA Center for Disease Control and Prevention (PLA CDC) was formally established within AMMS.<sup>5</sup>

The PLA CDC has capabilities separate from the civilian Chinese Centre for Disease Control and Prevention (Chinese CDC). It is unclear whether the PLA CDC and Chinese CDC have intentionally redundant capabilities in the event of a public health emergency or whether there are specific complementarities. Chinese CDC reports to the National Health Commission (State Council) while PLA CDC ultimately reports to the CMC.<sup>6</sup>

In August 2005, AMMS established and operationalized the ‘three major forces’ structure. This comprises:

- Strategic planning force for military combat medical preparations to address strategic scientific and technological problems
- Specialized tactical force for counter-terrorism operations and public health emergency crisis response
- Specialist technical unit for the PLA’s disease prevention and control activities<sup>7</sup>

AMMS was placed on the United States export control blacklist in December 2021 with its leading role in CCP NeuroStrike research serving as a key justification.<sup>8</sup> Given the proscribed status of AMMS combined with its operational requirement to continue to clandestinely access leading Western research and technologies, it has become necessary to maintain a close monitoring function on this entire institution.

As a central PLA component of the CCP NeuroStrike program, AMMS represents a complex network of still-overt, half-submerged and outright subterranean global linkages that continue to ‘power’ its most aggressive research and development programs. These network linkages and their associated activities will generate a myriad of signals ranging from readily discoverable to faint and fragmented. Only a network graphic-centric approach can effectively capture this variance and render the collected intelligence in a targeting-relevant form.

### **CCP’s ‘Three Warfares’ Strategy and the Role of the PLA Strategic Support Force (PLASSF)**

In 2014, China’s National Defense University fully articulated the ‘Three Warfares’ strategic concept for the first time. Three Warfares is specifically designed to enable China to achieve end goals that have traditionally been accomplished by conventional military force through the effective use of psychological warfare, media warfare, and legal warfare.

---

<sup>5</sup> Chinese Academy of Sciences, 2 May 2003.

[非典科技向你宣战\(图\)---中国科学院 \(cas.cn\)](http://www.cas.cn)

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> ‘Commerce Acts to Deter Misuse of Biotechnology, Other U.S. Technologies by the People’s Republic of China to Support Surveillance and Military Modernization that Threaten National Security’, U.S. Department of Commerce, 16 December 2021.

Bill Gertz, ‘Chinese ‘brain control’ warfare work revealed’, Washington Times, 29 December 2021.

The Three Warfares is intended to be integrated across the entire spectrum of military operations. Functions have also expanded and correspond to the PLA's increasing range of military missions. Core functions include, but are not limited to:

- Control of public opinion (舆论控制)
- Blunting an adversary's determination (意志挫伤)
- Transformation of emotion (情感转化)
- Psychological guidance (心智诱导)
- Collapse of (an adversary's) organization (组织瓦解)
- Psychological defense (心理防御)
- Restriction through law (法律制约)<sup>9</sup>

In broader strategic terms, the primary missions are to seize the “decisive opportunity” (先机) for controlling public opinion, organize psychological offense and defense, engage in legal struggle, and fight for popular will and public opinion.<sup>10</sup> Under this combined framework, China must simultaneously unify military and civilian thinking, divide an enemy into factions, weaken the enemy's combat power, and organize legal offensives. The CCP NeuroStrike program is an essential capability to achieve these strategic endpoints.

The South China Sea dispute presently provides the most observations and examples of the application of the Three Warfares strategy. Since China began constructing artificial islands in disputed territory in 2013, the core components of Beijing's strategy broadly consist of:

- Move first, proactively establish new ‘ground conditions’, and leverage these developments to actively shape and control the domestic and international information environment
- Utilize international arbitration while continuing with new island creation unabated
- Delegitimize and dismiss the validity of international arbitration rulings in the event of an adverse ruling and shift the focus to China's own domestic legal statutes and framework
- Claim that the entire Nine-Dash Line in the South China Sea has always been historically Chinese maritime territory that was wrongfully and forcefully taken by foreign aggressors
- Frame the entire issue through the prism of the China simply exercising its legitimate rights to fully recover from the Century of Humiliation

---

<sup>9</sup> Elsa Kania, “The PLA's Latest Strategic Thinking on the Three Warfares”, *China Brief*, Vol. 16, Iss. 13, 22 August 2016.

<sup>10</sup> Ibid.

- Utilizing Chinese media outlets, social media, and public diplomacy to achieve the above components
- Coordinating strategic activities of China's Maritime Militia, Coast Guard, and PLAN in and around key geographies, such as Scarborough Shoal or Whitsun Reef, with the above components

China has consistently demonstrated strong capabilities in psychological operations, specifically in the South China Sea. These types of operations possibly represent a domain which fully leverages the full suite of the PLASSF's integrated information platforms, that can also incorporate new NeuroStrike capabilities. The PLASSF represents a new end-to-end platform capability to engage in precise psychological operations against a target population to achieve specific outcomes that have been traditionally associated with conventional warfare.

The PLASSF likely provides China with the ability to simultaneously shape a particular information environment on the ground, provide asymmetric information advantages to Chinese forces (irregular, civil, and/or military) in a specific location, and to defend against countermeasures by opposing parties. With additional NeuroStrike capabilities that can either damage, disorient or even control perceived adversary cognition at the population level, the PLASSF would represent an exponential escalation in the CCP's aggression in the Indo-Pacific.

As the PLASSF is a relatively new service branch, the number of observable events associated with it are presently limited and it is important to avoid speculation. However, there are four current case studies in the Indo-Pacific in which the PLASSF likely has a substantial role to play. As such, it is important to consistently track the PLASSF's involvement in these areas.

### **Current Indo-Pacific Case Studies: Hong Kong, Taiwan, Whitsun Reef, and India**

Despite months of large streets protests and warnings from many Western governments, including the United States under the Trump Administration, Beijing proceeded to implement the National Security Law in June 2020 thereby further integrating Hong Kong into Mainland China. Hong Kong's leadership and society both remain fairly split as to whether this is a positive development and is in the best interests of Hong Kong. In this blurred operating environment, it will be important to monitor and assess how the PLASSF engages.

It is possible that the PLASSF may pursue a two-pronged approach to Hong Kong-centric psychological operations. This would involve stressing the positive aspects of deeper integration with Mainland China while also stressing the futility of resistance given China's overwhelming military capabilities and comprehensive national power. Given the PLASSF's control over space-based information infrastructure, this could be leveraged to both control the message and block out alternative information streams. It also presents structural opportunities for the deployment of CCP NeuroStrike capabilities.

Taiwan presents a major challenge to the PLASSF's psychological operations in that it represents a very resistant information environment, especially following recent developments in Hong Kong. Unlike in Hong Kong, China will continue to have difficulty identifying and cultivating a pro-Beijing constituency that responds either to positive

inducements or threats of the use of force. Given this, the CCP may opt for the use of more coercive weapons, such as NeuroStrike.

In the Taiwan theatre, PLASSF psychological operations may focus more heavily on areas of higher potential return, such as the United States and its Allies. These psychological operations would again likely be focused on demonstrating that China has already established a *fait accompli* and that external involvement in any Taiwan conflict scenario would be unsuccessful with catastrophic consequences for any party who attempted to intervene. Messaging in conventional military terms to specific opposing target audiences would be a unique capability that the PLASSF would offer. NeuroStrike can be held in reserve in the event that the CCP leadership determines that more conventional PLASSF information operations are not achieving the desired results.

The cyclical standoff at Whitsun Reef, which is clearly within the Exclusive Economic Zone (EEZ) of the Philippines, presents a third case study of the PLASSF's potential role. In the case of Whitsun Reef, Beijing stated that Chinese fishing vessels had to take shelter in the area due to a storm in early March 2021. However, it should be noted that the weather during that period consisted of mostly clear skies, low winds, and calm seas. Whitsun Reef is also not located in a typhoon-prone area.

While the Chinese ships that periodically occupy Whitsun Reef are classified as fishing vessels, there are always Chinese Coast Guard and PLA Navy (PLAN) vessels in reinforcement positions in near proximity. These developments likely suggest that these Chinese vessels constitute a component of China's Maritime Militia and can operate in both civilian and strategic capacities.

The recent pattern of events at Whitsun Reef largely mirrors the events that led to China's seizure of the Scarborough Shoal, also clearly within the EEZ of the Philippines, in April 2012. Similarly, Beijing dubiously claimed that its ships were seeking refuge from adverse maritime conditions. The situation escalated quickly with the United States brokering a mutual standdown agreement in which both China and the Philippines were to simultaneously withdraw all vessels from Scarborough Shoal. While the Philippines complied and withdrew all assets, China did not and still exercises effective control over the Scarborough Shoal.

The PLASSF was not officially in existence during the Scarborough Shoal event and it will be critical to observe its involvement in what currently appears to be a near-repeat event at Whitsun Reef. The PLASSF could possibly play a more prominent role in directly targeting and influencing perceptions in Filipino and/or American leadership circles (especially military). It could also utilize its various space-based assets to enable the PLA to isolate and control these maritime features.

The final case study is the Sino-Indian border standoff that remains tense and potentially escalatory following the armed hostilities that occurred in August 2020 in the Galwan Valley. Similar to the ground situation in Taiwan, the PLASSF is unlikely to obtain pro-Beijing partners within India's leadership that would operate within India to forward Chinese objectives along the disputed border. In addition, Chinese threats to encircle and overwhelm India, such as those that Beijing makes towards Taiwan, are not credible given India's



landmass, large population, and substantial conventional and unconventional military capabilities.<sup>11</sup>

India is also a resident power in the Indo-Pacific thereby restricting Chinese options to portray India (to both domestic and regional audiences) as a spent, extra-regional power that is on its way out on the region (as China often portrays the United States). Given the clear limitations on PLASSF psychological operations against India, it is possible that the PLASSF will focus more heavily on coercive NeuroStrike capabilities and precision targeting of India's critical information technology systems, including the Indian Regional Navigation Satellite Systems (IRNSS). IRNSS provides real-time positioning capabilities within India as well as a 1,500-kilometer radius outside of India.

IRNSS does not have the same user base and market centrality as America's GPS or China's BeiDou systems. However, its degradation or disablement by the PLASSF would likely cause substantial military and civilian disruption within India itself, although likely temporary given the 'fallback option' onto GPS. In addition to the psychological effects that such an action would achieve on its own, it would also potentially signal to India, as well as India's partners, that the PLASSF has a substantial technological edge in this military domain and that resistance is a high-risk, low-return exercise.

### **Next Phase of the Three Warfares Strategy and NeuroStrike: PLASSF as a Force Multiplier?**

The strategic situations in Hong Kong, Taiwan, Philippines, and India differ substantially and pose varying challenges to the PLASSF. However, one unifying strategic principle is that the PLASSF will likely seek to move quickly and decisively to enable strategic activity by other branches of the Chinese military and security apparatus. Given the limitations of conventional psychological operations against targets in these geographies combined with recent advances in the coercive CCP NeuroStrike program, the risk of these capabilities being used likely increases.

---

<sup>11</sup> For a more in-depth discussion on the broader structural dynamics of Sino-Indian rivalry and enduring Indian strategic trends, please see A.Z. Hilali, "India's Strategic Thinking and Its National Security Policy", *Asian Survey*, Vol. 41, No. 5, September-October 2001, pp. 737-764.

Walter Ladwig III, "A Cold Start for Hot Wars? The Indian Army's New Limited War Doctrine", *International Security*, Vol. 32, No. 3, Winter 2007/2008.

Anupam Srivastava, "India's Growing Missile Ambitions: Assessing the Technical and Strategic Dimensions", *Asian Survey*, Vol. 40, No. 2, March-April 2000, pp. 311-341.

Mark Frazier, "Quiet Competition and the Future of Sino-Indian Relations", in *The India-China Relationship - Rivalry and Engagement*, ed. Francine Frankel and Harry Harding, Oxford University Press, New Delhi, 2004, pp. 294-321.

Raja Mohan, *Crossing the Rubicon - The Shaping of India's New Foreign Policy*, Palgrave Macmillan, New York, 2005.

Steven Hoffman, "Perception and China Policy in India", in *The India-China Relationship - Rivalry and Engagement*, ed. Francine Frankel and Harry Harding, Oxford University Press, New Delhi, 2004, pp. 33-75.

Sumit Ganguly, "India and China: Border Issues, Domestic Integration, and International Security", in *The India-China Relationship - Rivalry and Engagement*, ed. Francine Frankel and Harry Harding, Oxford University Press, New Delhi, 2004, pp. 103-134.

P.M. Kamath, "India-China Relations since the End of the Cold War: India's Security Concern and Policy Options", in *India, China, and Southeast Asia - Dynamics of Development*, ed. MD David and TR Ghoble, Deep and Deep Publications, New Delhi, 2000.

Beyond the initial enablement phase, the PLASSF will likely utilize its end-to-end space-based platform capabilities to drive information dominance and attempt shape the decision-making of a specified target audience in a particular location in question. This will occur while demonstrating to external opposing forces that the situation has already been adjudicated in China's favor, is irreversible, and that attempts to alter the situation will be futile and costly.

In military terms, the PLASSF will likely be the key enabler of 'forced entry' followed by 'geofencing'. These actions will likely focus on isolating and dominating specific opponents as opposed to attempting to disintermediate larger alliance structures or strategic groupings, such as the Quad. All recent Chinese successes (from Beijing's perspective) have occurred when a specific country is directly targeted and isolated. This strategic lesson has clearly been absorbed by Beijing as evidenced by recent developments at Whitsun Reef.

While the strategic direction of the PLASSF largely converges with the broader PLA, the ratio of psychological operations versus active military operations is still undetermined given the current lack of reliable observables. Regardless, China's PLASSF represents a major evolution both in technological capabilities as well as strategic and organizational thinking within China's leadership. The PLASSF now operates as a type of superstructure on top of a growing and increasingly active platform of Chinese military assets (land, sea, air, cyber, and space) across multiple theatres in the Indo-Pacific while simultaneously serving as the primary deployment platform for new NeuroStrike weaponry.

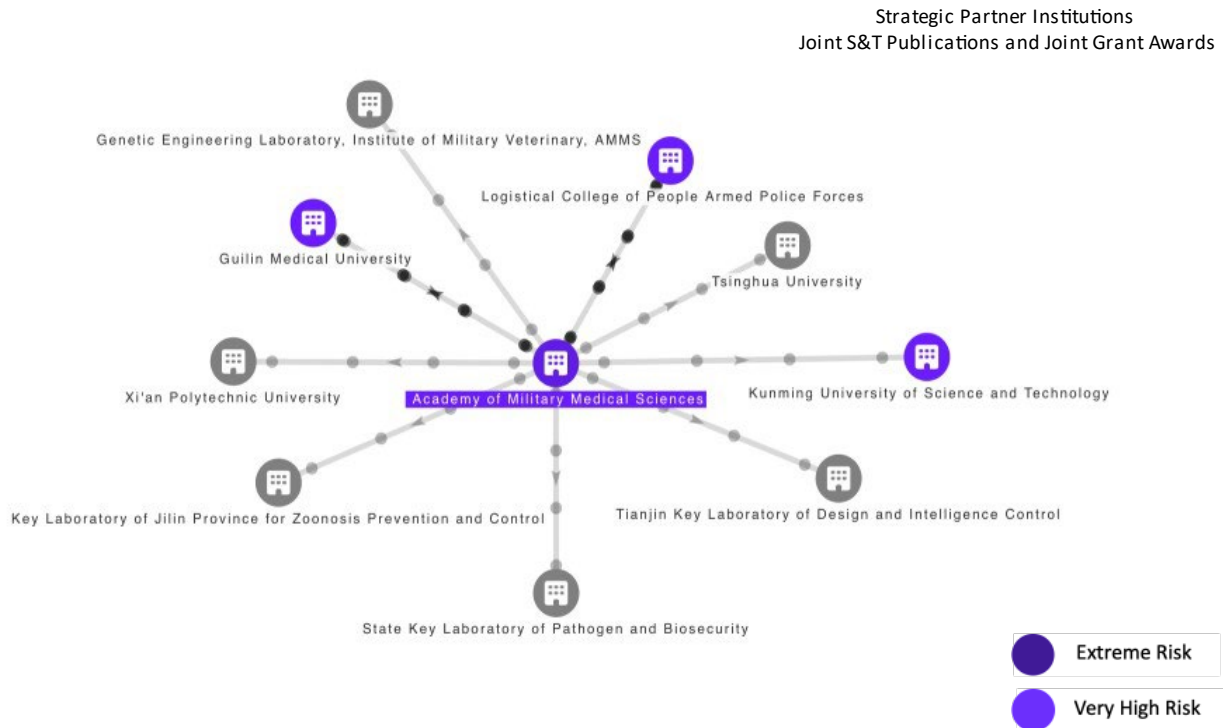
### **Converting Knowledge into Precision Targeting: Generating Executable Options with Anticipated Strategic Effects to Collapse the CCP NeuroStrike Program**

Utilizing multi-domain network graph generation technologies and methods, the primary strategic output of this approach is to utilize advanced methods in Counter-Threat Network (CTN) to generate a range of executable options for the United States to directly target and collapse the CCP NeuroStrike program. CTN-driven targeting options can be tied to specific American policy goals and can include, but not be limited to:

- Fully inform the public about the threats of NeuroStrike weapons development. Public exposure of dangerous research will alarm the public as well as some international collaborators who are not aware of the true intentions of Chinese researchers or their direct connection with CCP/PLA objectives.
- Call for international discussion as well as policy remedies to enhance ethics reviews for certain neuroscience/cognitive science studies, so that international researchers would be more cautious when they choose a research partner from China.
- Sabotaging critical supply chains of specific institutions and/or companies.
- Deploying cyber capabilities to take over all control systems of key CCP NeuroStrike facilities with no options for recovery and resumption of normal operations.
- Neutralizing key personnel in strategic positions within the CCP NeuroStrike program.
- Precision sanctions against the full CCP Civilian-Military fusion of interests related to the CCP NeuroStrike program, including specific CCP members and their holdings.

The generated network graphs will surface key strategic points of vulnerability within the CCP's NeuroStrike program that can produce cascading failures thereby achieving the strategic net effects required to protect American national security as well as the security of American Allies.

### Top Domestic Strategic Partner Institutions of the Academy of Military Medical Sciences



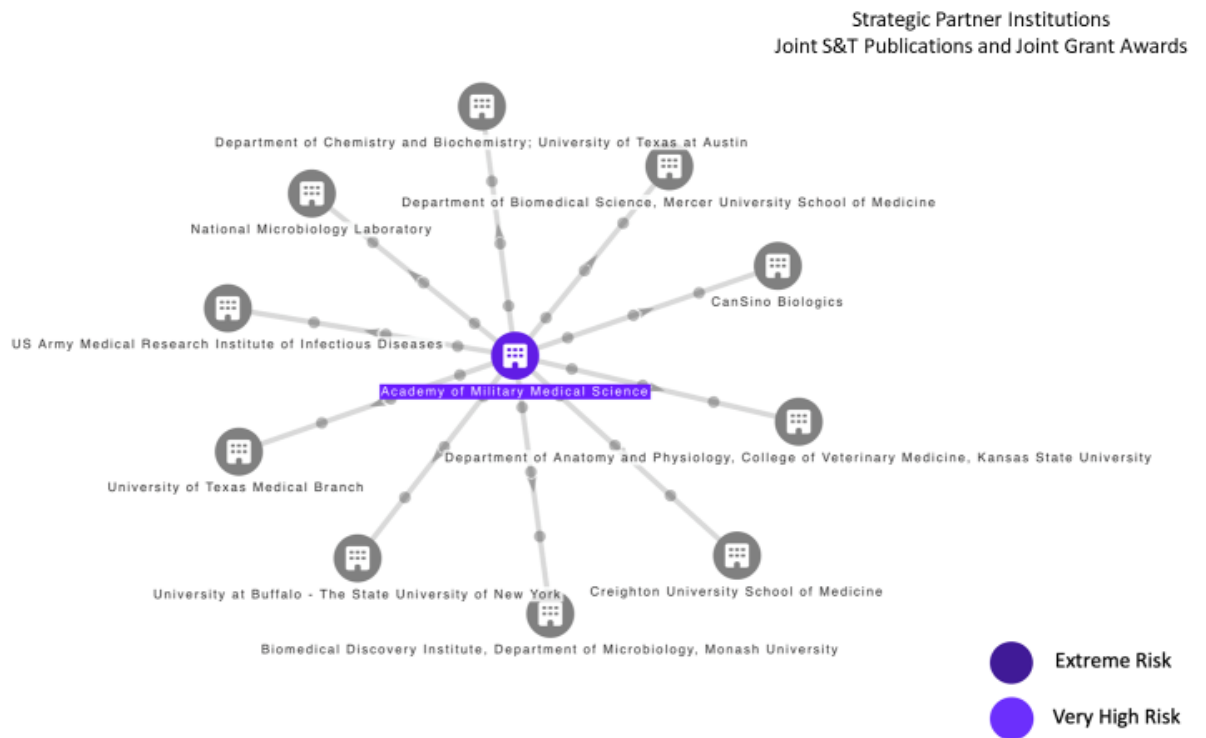
Source: Data Abyss (<https://www.dataabyss.ai/>)

### Negate Information Asymmetries, Make Involvement in the CCP NeuroStrike Program a High-Risk Venture

Like all of the CCP's asymmetric warfare programs, NeuroStrike depends entirely on presenting a massively decentralized and fragmented network structure. This renders it nearly impossible to map using traditional investigative or intelligence approaches. China does not yet possess the defense and industrial base to produce the types of technologies required to operate a NeuroStrike program that has technical capabilities that match the strategic ambitions of the CCP and PLA.

This fundamental gap presents a massive vulnerability for decapitating strikes against the NeuroStrike program provided that these gaps can be surfaced and precision targeted. Network graphs provide the best American and Allied options to find key network weaknesses, unmask key personnel (including those outside of China) and make involvement in this weapons program a high-risk venture where technical failure and negative international attention are the most likely outcomes.

## Top Transnational Strategic Partner Institutions of the Academy of Military Medical Sciences



Source: Data Abyss (<https://www.dataabyss.ai/>)