ON DEEP CONVOLUTIONAL NEURAL NETWORKS AND BUILDING LATENT VIOLENCE IN THE INDO-PACIFIC

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"In today's hyper-computing age of convergent technology in information flows and processing power, the capacity exists to calculate previously impenetrable problems." —Everett Dolman, *Pure Strategy*[1]

AT FIRST GLANCE,

it may seem odd to couple a two-millennia-old story with modern notions of neural network architecture and deterrence. Yet, Cicero's depiction of the sword of Damocles offers an excellent introductory framework for conceptualizing how forward-positioned joint, allied, and partner militaries can leverage neural networks to build overwhelming deterrent capacity within the Indo-Pacific region. Cicero tells of a Syracusan tyrant, Dionysius, who believes a member of his court, Damocles, is seeking to supplant him.[2] In response, Dionysius throws a feast, gives Damocles a place of honor, and lavishes him with the finest foods royalty can provide. Simultaneously, he orders a "bright sword to be let down from the ceiling, suspended by a single horse-hair, so as to hang over the head of [Damocles]."[3] With this gesture, Dionysius achieves what Thomas Schelling would later define as "latent violence," or violence "that can still be withheld or inflicted" for the purpose of influencing behavior.[4]

Keeping Cicero's story in mind, this article is composed of three components. First, it isolates core ideas associated with deterrence theory. Second, it reviews the current state of Deep Convolutional Neural Networks (DCNNs) relevant to building deterrence in the Indo-Pacific. Lastly, it combines these components to present a vision for future Indo-Pacific strategic deterrence undergirded by intelligentized targeting cycles. Ultimately, I argue that the joint fires enterprise can bolster contemporary deterrence in the Indo-Pacific region by leveraging mature target acquisition DCNNs to produce an overwhelming, credible threat of latent violence—thereby creating a modern sword of Damocles.

Effective deterrent action rests upon three pillars: (1) capability, (2) communication, and (3) credibility.[5] Concerning capability, one party, **A**, must convince another party, **B**, that it can forcefully punish **B** at will. In this way, **A** gains a degree of control of **B**, who now believes the "resistance costs" are more detrimental than the costs associated with tacit "compliance."[6] J.C. Wylie referred to this as gaining "control of the pattern of war."[7] Consequently, **A** can threaten **B** to "discourage or disincentivize a given action from being taken."[8] Clear communication of "expected behavioral guidelines" from **A** to **B** outlines a path for "B" to avoid latent violence.[9]

For the threat to remain effective, **A** must maintain credibility by continuously demonstrating a "commitment to carry out the threat."[10] Within the U.S.—China deterrence dichotomy, U.S. commitment is often demonstrated through combined exercises with Indo-

Pacific partners. For example, Ronnie Michael illustrates how U.S.-Japanese bilateral exercises such as KEEN EDGE/ KEEN SWORD, build alliance capacity.[11] Richard Butler and Jimmy Bell also highlight the shore-to-ship "ring of fires" capability demonstrated during the 2024 U.S.-Philippines BALIKATAN exercise.[12] Over time, such exercises build "multi-layered networks" that reinforce U.S. credibility and commitment to maintaining an integrated deterrence framework in the Indo-Pacific.[13] Now, consider how DCNNs can enhance this commitment.

DCNNs UTILIZE COMPUTER

vision to achieve object detection and classification at intelligentized machine speed, creating efficiencies within the targeting cycle at orders of magnitude above what contemporary staffs can achieve using informatized systems. **Figure 1** uses an S-300 air defense platform to illustrate how target acquisition DCNNs move through their decision making process to reach image classification.

Future target acquisition DCNNs within a joint fires enterprise will observe adversarial combat power such as the S-300 above. The feature-learning component—consisting of convolutional + rectified linear unit (ReLU) and pooling layers—segments the image into feature maps from which the DCNN extracts key features.[14] The pooling function continuously consolidates these extractions into increasingly recognizable features associated with what the DCNN is observing. The flattening layer acts as a "pruning" mechanism that orders consolidated feature maps into a linear vector from which the DCNN can understand the image holistically.[15] Most importantly, the fully connected layer ties all preceding layers together, "facilitating comprehensive feature representation" and accurate target classification.[16] In this example, the DCNN attaches a 98.3% probability that the observed image is an S-300.

Nascent versions of such DCNNs are already embedded within military organizations. The U.S. Army leverages a target acquisition DCNN to power its Maven Smart System, enabling automatic target classification and real-time targeting, as demonstrated by the 18th Airborne Corps in their SCARLETT DRAGON exercise series.[17] Similarly, Alex Barker highlights how the People's Liberation Army (PLA) incorporates "You Only Look Once" (YOLO) DCNNs to achieve intelligentized military target recognition.[18] Given these capabilities, how will future DCNNs contribute American deterrence in the Indo- Pacific?

ENHANCING DETERRENCE

will require:

1. Embedding mature target acquisition DCNNs in manned and emerging unmanned Intelligence, Surveillance, and Reconnaissance (ISR) platforms.

2. Communicating this augmented intelligentized capability to the PLA, and

3. Building credibility by exploiting existing OPERATION PATHWAYS exercises to demonstrate an intelligentized joint targeting cycle (see Figure 2).

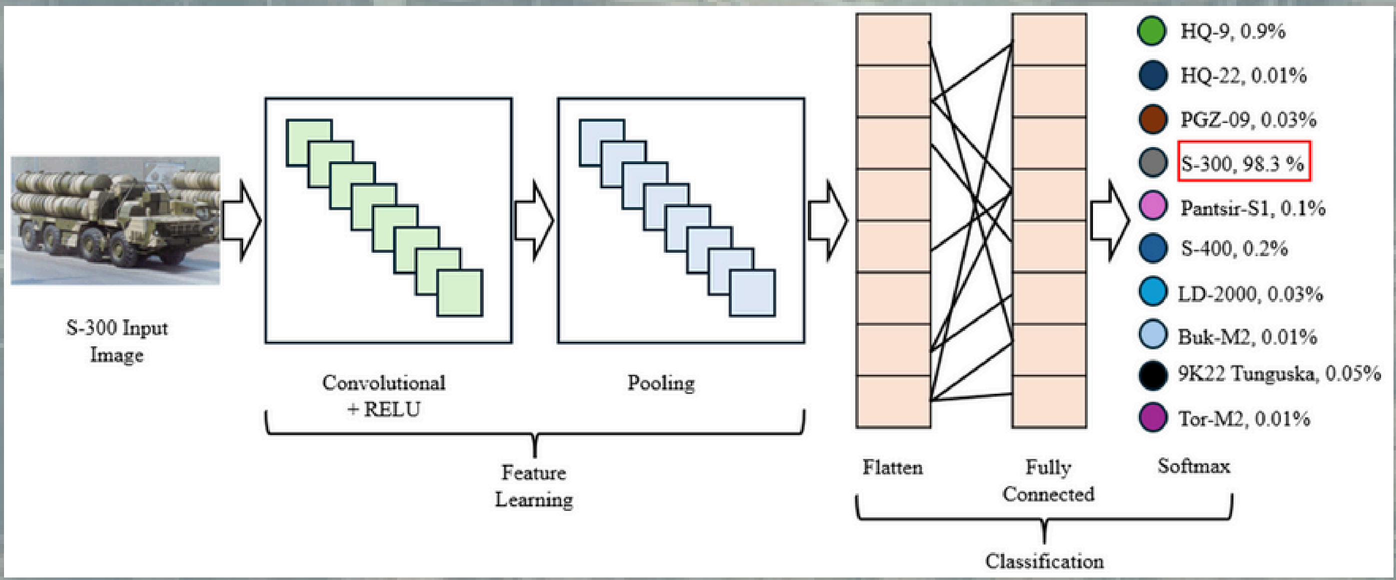

FIGURE 1. Target Acquisition Deep Convolutional Neural Network (Created by Author)

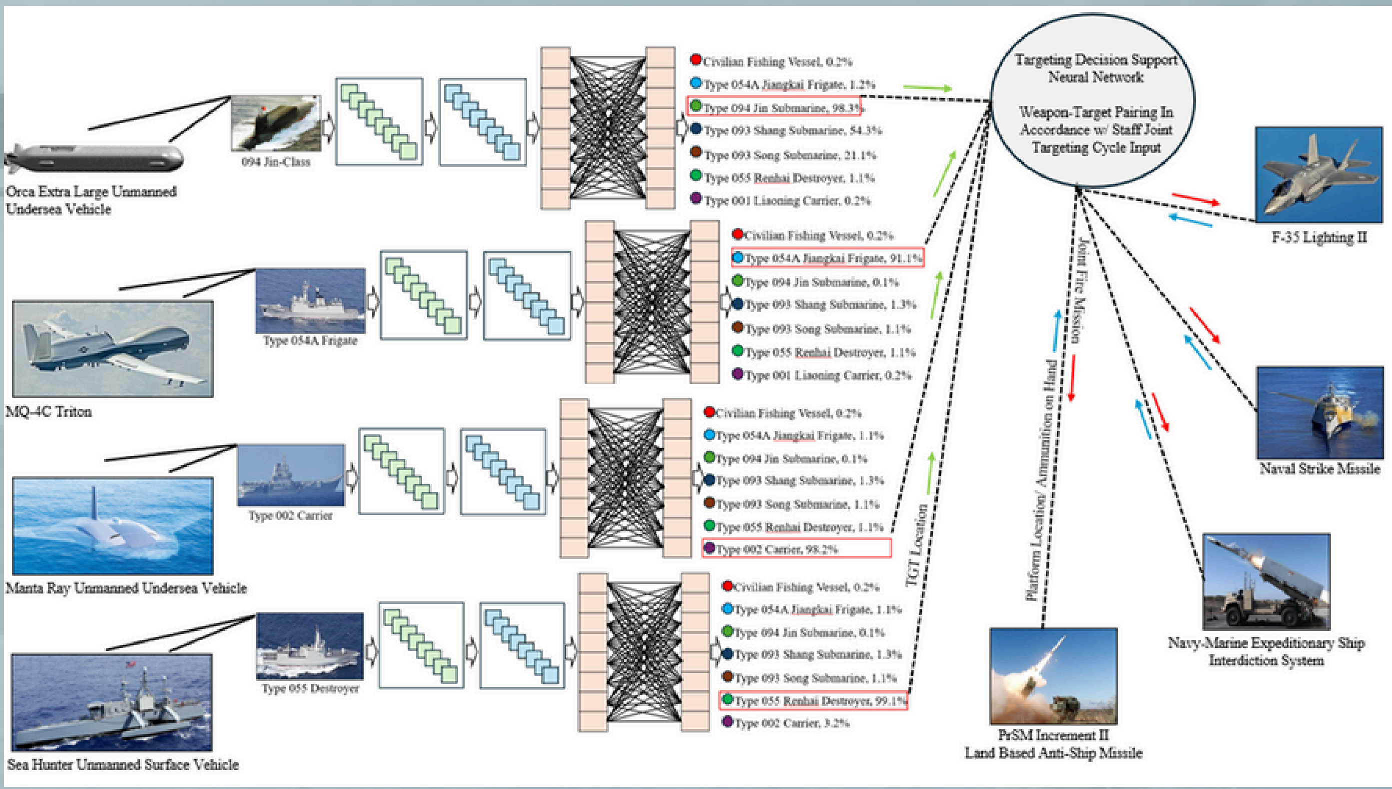

FIGURE 2. Joint Targeting Facilitated by Neural Networks (Created by Author)

NEAR-FUTURE,

long-endurance air, sea, and land robotic ISR platforms—like those on the left of **Figure 2**—will operate with mature DCNNs capable of identifying adversarial combat power type, location, and disposition. This data will be aggregated in a targeting decision support neural network aware of all ISR inputs, as well as the location, readiness, and magazine capacity of friendly delivery platforms. The network synchronizes ISR data with Joint Targeting Coordination Board outputs, such as the Joint Integrated Prioritized Target List (JIPTL), and apportioned targets by service component.[19] Responsive dynamic targeting thus becomes facilitated by neural networks that allow commanders to "target across the battlespace [at] hitherto unachievable depth, speed, and resolution."[20] This newfound capability must be repeatedly communicated to the Chinese Communist Party and the PLA.

OPERATION PATHWAYS exercises offer an excellent venue to communicate and demonstrate this intelligentized joint targeting capability. Yama Sakura 87 is already advertised as an exercise in deterrence and combat power projection facilitated by Japan, Australia, and the U.S.[21] Likewise, the shore-to-ship "SinkEX" dynamic targeting event during BALIKATAN—featuring "relocating long-range precision-strike systems"—offers an ideal environment for demonstrating emerging deterrent capability.[22] Coupling these existing exercises with target acquisition neural networks holds great potential for demonstrating capability, communicating intent, and reinforcing credibility among allies and partners.

AT THE BEGINNING

of this article, Doman considered how increased processing power and robust information flows could solve previously impenetrable problems. He said this in 2004. Today, in 2026, ever increasing computing power has created viable target acquisition DCNNs that, when applied at scale, offer a solution to the enduring challenge of rapid and effective targeting. As the U.S. continues to invest in artificial intelligence (AI) development, the sophistication and utility of DCNNs will only increase—further improving their viability as a modern sword of Damocles. In Dionysius' time, the sword of Damocles was an effective threat of latent violence because Damocles recognized its credible danger as it dangled above his head. By lowering the sword, Dionysius demonstrated capability, communicated intent, and established a credible deterrent threat to influence the behavior of a power-hungry subordinate. Modern target acquisition DCNNs enabled by contemporary computing power, provide a means to achieve a similar effect today—an intelligentized joint targeting capability functioning as a modern sword of Damocles. One must only demonstrate the capability, communicate its effectiveness, and continually build credibility to enhance deterrence in the Indo-Pacific—Mens Est Clavis Victoriae.

NOTES

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