Defense Innovation Board Proposes Key AI Ethics Principles

The Pentagon may lead the world in AI standards with new approaches to artificial intelligence.

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Michael McQuade, Defense Innovation Board member, speaks at a public meeting at Georgetown University, Washington, D.C., Oct. 31, 2019. Photo Credit: U.S. Navy Petty Officer 2nd Class James K. Lee/DVIDS

A report from the Defense Innovation Board recommends artificial intelligence ethic principles and actions for the Defense Department in its research, development and deployment of AI technologies.

The report includes five principles and 12 recommendations, which the board created after 15 months of researching and discussing with various DOD officials, academic experts and industry partners. The board, which consists of 16 technologists who advise DOD, voted in favor of the recommendations at a public meeting in Washington, D.C., Thursday.

The five principles the board outlined are as follows:

- **Responsible** – that "humans should exercise appropriate levels of judgment and remain responsible for the development, deployment, use, and outcomes of AI systems."
- **Equitable** – DOD should "take deliberate steps to avoid unintended bias in the development and deployment of combat or non-combat AI systems that would inadvertently cause harm to persons."
- **Traceable** – DOD's "AI engineering discipline should be sufficiently advanced such that technical experts possess an appropriate understanding of the technology, development processes and operational methods of its AI systems, including transparent and auditable methodologies, data sources and design procedure documentation."
- **Reliable** – "AI systems should have an explicit, well-defined domain of use, and the safety, security and robustness of such systems should be tested and assured across their entire life cycle within that domain of use."
- **Governable** – "AI systems should be designed and engineered to fulfill their intended function while possessing the ability to detect and avoid unintended harm or disruption, and disengage or deactivate deployed systems that demonstrate unintended escalatory or other behavior."

To devise these principles, the board drew from existing laws including the Law of War, international law, the U.S. Constitution and Title 10 of the U.S. Code. Although DOD has other technology ethics codes, its AI Strategy in 2018 called for the creation of an individual set of ethics rules around AI.

To realize the proposed principles, DIB formed 12 recommended actions. DIB Member and Carnegie Mellon University Vice President for Research Michael McQuade, who presented the AI Ethics Principles report before the rest of the board's members, highlighted the top four most important recommendations.

"One is that DOD should formalize its response to this study and recommendations, and it should formalize how they will proceed with its process and communicate what it is going to do about ethics," McQuade said. The next recommendation is "to cultivate and continue to grow the field of AI engineering. It is a rapidly evolving discipline. There's investments that need to be made in the underlying technology."

The last two critical recommendations were to develop a risk-management methodology to develop the language and understand the risk in AI systems, and to convene an annual conference on AI safety, security and robustness for the Joint AI Center to keep up with the rapid advancements in AI technologies.

Overall, McQuade emphasized the report is a document forged through the collaboration between DIB's membership and the expertise of military, industry and academic professionals. The document, he added, is the chance for the U.S. to "lead a global dialogue" in AI while upholding American values.

"We do need to provide clarity to people who will use these systems, and we need to provide clarity to the public so that they understand how, when, why and where the department will use AI," McQuade said.

The report will be submitted to Defense Secretary Mark Esper and DOD's leadership for review.

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