DEFENSE INNOVATION BOARD
Open Meeting Minutes
September 15, 2020
12:00-2:30pm EDT
Virtual-Microsoft Teams

OVERVIEW

The Defense Innovation Board (DIB) is a federal advisory committee within the Department of Defense (DoD) operating pursuant to the Federal Advisory Committee Act of 1972, the Government in Sunshine Act of 1976, and other appropriate federal regulations. The DIB meets quarterly and held its sixteenth public session on September 15, 2020 from 12:00 PM to 2:30 PM virtually over Microsoft Teams.

DIB Members (voting) (13)
Mark Sirangelo
Eric Schmidt
Richard Murray
Marne Levine
Michael McQuade
Drew Endy
Milo Medin
Neil deGrasse Tyson
Jen Pahlka
Adam Grant
Missy Cummings
Danny Hillis
Daniela Rus

DIB Staff Support (non-voting)
Ms. Colleen Laughlin, Executive Director, DFO
Ms. Erin Bugg

Livestream Participants (476)

PUBLIC MEETING SESSION

At 12:00 PM, Ms. Colleen Laughlin, Designated Federal Officer (DFO), opened the public meeting and welcomed the members of the public and those joining over livestream. Dr. Mark Sirangelo welcomed the guests to the DIB's first virtual meeting. He gave a brief overview of the DIB's mission and history, and thanked outgoing members. Dr. Sirangelo also paid a special thanks to Dr. Eric Schmidt and thanked participants for attending. Dr. Sirangelo then welcomed the DIB's newest member, Dr. Drew Endy. Dr. Eric Schmidt again thanked the outgoing board members for their accomplishments and the impact they made on DoD.

Dr. Sirangelo discussed the COVID-19 pandemic and how the DIB's adaptability was key to supporting the Department. He commented on DoD's acceleration of adoption of digital solutions, as well as the standing up of the U.S. Space Force. Dr. Sirangelo then discussed his conversations with Mr. Michael Kratsios (USD (R&E)) and informed viewers that Mr. Kratsios would be joining the meeting later.

Dr. Michael McQuade introduced the DIB's Science and Technology Subcommittee work. Dr. McQuade discussed the Artificial Intelligence Test, Evaluation, Verification, and Validation (AI TEV/V) and the

DIB's previous work on the AI Ethics Principles. Dr. McQuade commented on the interview process the DIB conducted with external stakeholders and external participants. Dr. McQuade first called on Dr. Daniela Rus to discuss her view into the Department and why it is an important topic.

Dr. Rus commented on the broader societal and industrial impact of AI technologies. Dr. Rus stressed the importance of AI TEV/V procedures so that confidence can be gained in a machine's performance and understanding of risk. Dr. Rus expressed that DoD would require a systematic approach to safely deploy AI systems.

Dr. McQuade thanked Dr. Rus for her overview and then introduced Dr. Missy Cummings before prompting Dr. Cummings to discuss some of the complications with testing AI-enabled systems.

Dr. Cummings listed some sources of uncertainty for AI-enabled systems and how TEV/V might help us characterize this uncertainty. Dr. Cummings discussed Tesla's self-driving car as an example of an AI-enabled system, and the challenges associated with testing it. Dr. Cummings then mentioned specific vulnerabilities as they relate to AI-enabled systems around Tesla's car example.

Dr. McQuade thanked Dr. Cummings for her briefing and introduced Dr. Danny Hillis to elaborate on deterministic versus nondeterministic systems.

Dr. Hillis elaborated on Dr. Cumming's discussion about uncertainty and further explained that there are three ways to describe and map uncertainty: function, input, and output. Dr. Hillis then provided examples of different combinations of these uncertainty factors and gave detailed explanations on how to categorize them.

Dr. Daniela Rus made a few observations on Dr. Hillis' examples. Dr. Rus then explained uncertainty in AI models and explained the importance of understanding the data and algorithms feeding the models.

Dr. Neil deGrasse Tyson expressed concern about the biases that AI-enabled systems might emulate if their biases are to mirror that of humans.

Dr. McQuade then called on Dr. Richard Murray to explain the limitations of a physical system such as a fighter aircraft versus that of a cyber domain, whose boundaries are not easily understood. Dr. McQuade then wrapped up the discussion and explained that the board will continue to work on the topic of AI TEV/V over the next few months in hopes of presenting a paper at the next public meeting.

Dr. Richard Murray introduced the area of Digital Engineering and digitally-enabled ecosystems for engineering, design, delivery, and deployment of DoD systems. Dr. Murray explained that Digital Engineering within the Department is uncommon, whereas Digital Engineering within industry is common practice. Dr. Murray called on Dr. Rus to share her thoughts, and she expressed the excitement

over the great opportunities that exist within computation and the use of techniques from AI and Machine Learning (ML). Mr. Kurt DelBene then commented on the complexity of the problem statement.

Dr. McQuade suggested that the issue is so vast that it may be broken up into digestible pieces, similar to how the SWAP study was completed. This prompted a few concurring comments from Mr. Medin and Dr. Murray. Mr. Murray then provided some closing statements to the Digital Engineering project.

Dr. Murray then gave an overview of the NDAA task to provide an assessment of the SWAP study in December.

Dr. Sirangelo then thanked the Science and Technology Subcommittee for their hard work and turned the floor over to Ms. Jen Pahlka to introduce the Workforce, Behavior, and Culture (WBC) project.

Ms. Pahlka presented updates on the WBC Subcommittee and discussed upcoming opportunities. Ms. Pahlka discussed recent changes in private sector work trends to compete for digital talent. She highlighted the expansion of remote work and emphasized that DoD must offer these remote work options if it wants to be viewed as an attractive modern day employer.

Ms. Pahlka called on Dr. Grant to provide statistics surrounding the shift to remote work, its popularity, and why it will be a good move for DoD.

Ms. Pahlka called on Ms. Marne Levine to highlight the future integration of remote work into DoD and the need to rethink and readjust long term policies to leverage this option for tech digital talent.

Ms. Pahlka called on Mr. DelBene, who reinforced the need for remote work by commenting on Microsoft as a successful example of a company who migrated to 100% remote work during COVID.

Ms. Pahlka and Dr. Grant discussed a few more talking points on the remote digital talent proposal and joined board members in a deliberation on the report. The Board then voted on the report and approved it unanimously.

Dr. Sirangelo then gave an introduction to Mr. Kratsios before turning the floor over to him. Mr. Kratsios provided comments about the innovation community and lauded previous DIB recommendations such as AI Ethics. He also praised the DIB for its positive influence on the Department and thanked Dr. Sirangelo for his contributions. Mr. Kratsios also provided commentary on his experience in Silicon Valley prior to moving to Washington D.C.

Dr. Sirangelo made closing comments.

END OF PUBLIC SESSION

ADJOURNMENT

Ms. Laughlin adjourned the DIB's September 15, 2020 public meeting session at 2:30 PM.

I hereby certify, to the best of my knowledge, the foregoing minutes are accurate and complete.

Mark Sirangelo, Ph.D.
Chairman, Defense Innovation Board