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NAVAL WARFARE STUDIES INSTITUTE

Naval Warfare Studies Institute

Newsletter - January 13, 2022

Happy New Year! In this issue, we walk you through the emerging technologies branch of the Naval Warfare Studies Institute at Naval Postgraduate School. Learn how NPS cuts through the noise to find the technologies with most promise for the Naval and joint forces.

NPS Converts Emerging Tech into Military Capabilities

A note from the NWSI Deputy Director



Emerging technologies have always captured the imagination of military planners and capability developers. Can the combat advantages provided in the past by radar, satellite communications, and nuclear power be provided in the future by artificial intelligence, additive manufacturing, robots and drones, and quantum computing?

- **Maybe... but:**Technologies by themselves are not capabilities.

NPS helps DoD turn new technologies into real capabilities. NWSI assists this effort by providing coordination, translation, and integration support to the NPS faculty and staff, the Services' headquarters, and warfighters in the Fleet and Fleet Marine Forces.

Our process:

- **Coordinating delivery of information and education** related to emerging technologies (what's real vs. what's hype) to those that need it – at the right time, at the right level of detail, and in the right context – right to the desktop.
- **Generating concepts of operation**, concepts of employment, and mission-centric use cases that illustrate how an emerging capability might be used, then **conducting wargames and analysis** that measure potential comparative advantages.

- **Enabling easy access to NPS' faculty** who bring their operational and academic expertise to the conversation. They also provide a conduit to the broader communities of practice spanning academia, industry, and government R&D.

The result? Naval leaders of all ranks are aware of critical emerging technologies, appreciate the technology's military utility (for us and for our adversaries!), closely monitor technology readiness levels, and are ready to quickly adopt, adapt, and integrate cutting-edge capabilities into our combat systems and our warfighting concepts.

Keep reading to learn more.

V/r,

Colonel Randy Pugh, USMC

Deputy Director of Naval Warfare Studies Institute Senior Marine Representative and Associate Dean of Research at Naval Postgraduate School

Want to get involved?

[Contact NWSI](#)

NWSI Connects Tech Innovation with Naval Priorities

A Note from Sheila Vaidya, Lead for Emerging Technologies

The Emerging Technologies Branch champions collaboration across the Naval Education Enterprise and with external entities such as industry, DoD labs, warfare centers, academia, and the operating forces.

- **The results?** Increased visibility into capabilities and research initiatives within NPS plus new partnerships that will aid in meeting warfighting priorities.

What constitutes an emerging technology? The list of critical emerging technologies is continuously evolving, based on changing threats and evolving priorities. Currently, NWSI tracks efforts in these areas:

- Artificial intelligence
- Next generation wireless
- Quantum S&T
- Autonomous systems
- Hypersonics

- Cyberspace
- Space-based capabilities
- Additive manufacturing

Another priority area is coming soon: military response for climate change will join our portfolio as we respond to the [SECNAV's Guidance to the Services](#).

[Read more](#) about current NPS research and curriculum focused on these transformational technologies.

Connecting Experts Across Siloes

NWSI marshals subject matter experts who understand the technical aspects of the technology, the tactical scenarios in which a technology might be utilized, or the physical environment in which a technology might be used.

- At NPS, sometimes we find individuals who bring all three!

NWSI convenes experts from NPS, from within the DOD Research and Development community, military units, academia, and industry.

- **Then what?** NWSI helps to lead discussion forums, exchange ideas with potential partners, and set up long-term education and research projects with clear requirements and definable metrics for success.
-

Partnering to Deliver New Tech

Several recent Cooperative Research and Development Agreements mean NPS can better leverage the expertise and insights of commercial companies, large and small.

- **Why it matters:** Many of the breakthroughs in emerging technologies are taking place in the commercial sector, and sometimes by tiny companies of one or two employees.

Our approach: We are working aggressively to find these innovators, learn what they know, help them understand what the military needs, and then bring that collective knowledge to the Fleet.

Latest Collaborations Focus on Edge Computing



Cooperative research with [AT&T on 5G](#) technology is securing a lead position for NPS in the rollout of 5G capabilities for the Navy, to include the concept of a “Battlefield Internet of Things.”

Collaboration with [TMGcore](#), a smaller company that specializes in high-performance computers, put supercomputers in a water-like liquid so they can run fast and cool.

- **The application?** Marines can conduct artificial intelligence “at the edge” while completely disconnected from battlefield data networks.

That’s not all: This work is a complement to NPS’ longstanding relationships with traditional labs like the Naval Research Lab, Lawrence Livermore National Lab, and the Naval Warfare Centers.

- [Watch a 30-second video](#) of the OTTO EdgeBox installation on campus.

The bottom line: NPS is helping the Navy and Marine Corps turn emerging technologies into emerging capabilities and, by doing so, contributing to our competitive advantage on tomorrow’s battlefield.

Stay tuned to learn more on these topics in the coming months.

[Contact NWSI](#)

Events

Save the Date! Naval Research Working Group 22

Coming up April 19-21, 2022

[The Naval Research Working Group](#) is a forum for Navy and Marine organizations to **communicate, review, validate, and recommend topics for NPS research in FY23**. This is an excellent annual opportunity for the Navy and Marine Corps to effectively leverage NPS faculty expertise and student operational experience as valuable research assets. All Research Sponsors, NPS faculty and students are invited and encouraged to participate.

Important dates

Early January: Call for presenters goes live

Late February: Official attendee registration for this event opens

March 30: Deadline for FY23 topic submission

April 19-21: Virtual NRWG 22 goes live

The NRP Topic Portal is open for FY23 research topic submissions from Fleet Topic Sponsors & NPS Faculty/Students.

[Submit a Topic](#)

One more thing...

Look who stopped by the NPS booth at this week's Surface Navy Association National Symposium in Crystal City.

The Honorable Carlos Del Toro, Secretary of the Navy, and Vice Adm. Roy Kitchener, Commander, Naval Surface Forces / Commander, Naval Surface Force, Pacific Fleet, chatted with Lt. Matt Albert, a surface warfare officer studying National Security Affairs at NPS.

