



# Q&A Executive Viewpoint

## A conversation with **BEN GOLDMAN**



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Technical Project Lead, Weapons Control and Integration Department, Naval Surface Warfare Center Dahlgren Division

A technology leader discusses how an industry partnership is accelerating the Navy's use of AI.

### **What do you hope to achieve through your cooperative research and development agreement with NVIDIA?**

The chief technology officer at Naval Surface Warfare Center Dahlgren Division, Jennifer Clift, has put an emphasis on the partnership between government, industry and academia. There's been a big push to build bridges and make connections between the work we're doing on the government side and the massive amount of investment and work being done in the private sector. Our CRADA with NVIDIA is a mutually beneficial way we can take advantage of all that progress.

We've previously acquired NVIDIA hardware and software to meet our business needs, and the CRADA is an opportunity for us to better understand how to use those products with the problem sets we encounter. We've been working for about a year now, and the relationship has been incredibly beneficial.

We are particularly interested in advances in artificial intelligence and machine learning, and the hardware and software tools that NVIDIA provides are great assets in pushing that area

of research forward in terms of image processing, scenario-driven reinforcement learning, accelerated edge processing – and the list goes on.

It has been a good area to focus on with the company's technical experts and the developers who create the hardware and software products. We've been able to leverage the NVIDIA ecosystems to gain more optimized performance of the company's hardware when we integrate it into Navy systems and to shorten the integration and development cycle in a lot of areas.

We're hitting all the high points of what we set out to do with the CRADA, but the room for growth is still massive, which is exciting.

### **How has access to NVIDIA's experts affected your ability to speed development times or introduce new tools or platforms?**

We have weekly meetings with our technical team and the technical support at NVIDIA to share best practices, lessons learned and bugs found. We've been able to get quick turnaround on subject-matter expert support from NVIDIA on specific

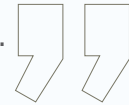


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questions that we've run into when utilizing their products. We've also been able to share information on bugs that we find so they can integrate them into their review process and resolve them quickly.

We've had access to the development teams that are building some of the products we're using, and we've been able to give them our feedback on good features for those products. We've also taken part in beta testing and accessed some of the toolkits before they're released to see if they fit our needs and are able to help us do our jobs better.

That's just a small sampling of the benefits we've seen so far with the expert support from NVIDIA. With the personal interaction we have through the CRADA, we've seen a pretty significant speed-up in how quickly problems are resolved, and we've decreased our cycle time.

On top of all that, we've been able to pull some of NVIDIA's training programs into our workforce development program here at Dahlgren. Through NVIDIA's Deep Learning Institute classes on AI and accelerated computing, we've received training on new tool sets and expert support to ensure that we're using all the

tools correctly and our workforce is gaining the skills we need. This is an emerging field, and not many people come out of college or other work environments with these skills, so training is essential.

We are working with NVIDIA on a machine learning hackathon for the second quarter of fiscal 2022. We've been leveraging the extensive work NVIDIA has done on those kinds of events to help get our hackathon off the ground.

#### **What NVIDIA technologies and software development kits have you leveraged for your research?**

Some of the things I've personally been able to take advantage of and dive into, and my team has as well, are the DeepStream SDK and the Transfer Learning Toolkit. We've also been using a lot of desktop NVIDIA GPUs as well as their Jetson embedded processing boards for edge computing.

And we're beginning to take advantage of virtual workstations to provide virtual environments within our network infrastructure here at the base to allow us to do some higher-end computational work without everybody having to have a supercomputer on their desk. We've been able to work with NVIDIA to get those pieces of hardware installed and accessible more broadly across our command.

#### **Which Dahlgren programs are taking advantage of the capabilities you're co-developing with NVIDIA?**

I won't get into the specifics of the programs we're working on, but I can touch on the areas at Dahlgren that have and will continue to benefit from our relationship with NVIDIA through the CRADA.

In terms of artificial intelligence and machine learning applications, we're making progress on automation, biometrics research, unmanned systems control and sensor processing, especially at the edge. In addition, a lot of our modeling and simulation work involves training environments for warfighters.

We've just scratched the surface in terms of the scope, breadth and depth of the applications that are benefiting from the parallel processing, machine learning-accelerated tools and hardware that NVIDIA provides. The benefits have been tangible and extensive, and we're excited to be partnered with them. ■



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