Machine Learning for Navy Applications

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Machine learning is critical to SPAWAR’s strategic vision

“The] era of precision and observation is giving way to an era of **competition for decision**. The sensors are now omnipresent, the positioning information is embedded, so now the competition is to orienting, finding a way through that information, and making a decision.”

CNO Admiral Richardson, Naval War College, June 2017
What makes machine learning hard for the Navy?

1. Data
2. Computing Environment
3. Trust
Navy data is noisy, sparse, and unstructured

Chinese aircraft carrier in South China Sea. *DigitalGlobe*
Navy data is noisy, sparse, and unstructured

Vehicles in desert environment. *DVIDS*
Navy data is noisy, sparse, and unstructured

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Service outage heat map.
What makes machine learning hard for the Navy?

1. Data
2. Computing Environment
3. Trust
The Navy has challenging computing environments

- Disconnected, Intermittent, and Limited (DIL) environments
- Legacy systems
- Data silos
- Multiple classification domains
- Unique human-machine interface requirements
What makes machine learning hard for the Navy?

1. Data
2. Computing Environment
3. Trust
Trust in the system is at least as important as the system itself

- Human-in-the-Loop vs Human-on-the-Loop
- Consequences when system is wrong
- Understandable failure
- Ethics of automation
When exploring machine learning for Navy applications...

▼ Use representative data
▼ Consider the system’s capabilities and limitations
▼ Remember the user
Workshop on Naval Applications of Machine Learning 2018

13-15 February, 2018, San Diego, California

- Tentatively: two days S&T focused, one day operationally focused
- Short technical talks and poster sessions
- Dr. Guna Seetharaman (ST, NRL) scheduled as keynote speaker
- Panel discussions on collaboration efforts / other topics
- Potential for classified sessions / meetings

Open to government, industry, academia

Now accepting abstracts until Nov. 12, 2017

Email mlworkshop@spawar.navy.mil for more info
THANK YOU

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