# PSCR 2021 THE DIGITAL EXPERIENCE

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ACE - A toolkit to simplify testing, development and prototyping of analytic technology

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# ACE is an analytics tool kit





#### **IOT – Internet of things**



#### Video Streams





AI/Machine Learning





#### **IOT** – Internet of things









Video Streams





AI/Machine Learning







#### So, what is ACE?

# **Analytics Container Environment**









# Who could use ACE?

#### Street fight

A street fight detection algorithm could detect when a fight breaks out

#### Fire or smoke

A fire detection algorithm could detect and alert when a fire or smoke is detected

#### Medical emergency

A detection algorithm could detect a person collapsed on the ground



#### How does ACE work?



## Additional ACE features



#### **GPU** enabled

ACE is GPU enabled, which provides exponential increases in processing power and efficiency.

#### **Confidence Intervals**

Numeric representation of the confidence the algorithm has in the detections it makes. ACE color codes these to improve, at a glance, visibility to the user.





#### **New Features**



#### **GUI – Graphical user interface**

Developed a user interface for configuring, deploying, and interacting with ACE analytics



#### **Expanded API**

Expanded the API to accommodate more types of analytics as well as integrated more open-source analytics into ACE

# ACE Demo

A	CE Controller		$\diamond$
	Configure	App / Configure Page	2
	Dashboard	Configure Analytics	
Ш		Use custom stream source	
		Stream Source	•
		Analytics address	*
		Tags	
		Tag to add to the analytic output. For multiple tags, use comma separated value. Format is 'key=value' Messenger address: nats_server:4222 Database address: influxdb:8086	
			CANCEL APPLY



#### How to use ACE



# 10K+

#### Downloads

of custom CUDNN, TensorFlow, OpenCV containers we created for ACE

0

IAM



## **Future ACE**



#### **Deployment in live Public Safety environments**



#### **Increase scalability**

We plan to increase the scalability of the environment by moving the back end to Kubernetes container orchestration system





# https://github.com/usnistgov/ace

# https://github.com/usnistgov/ace-ui



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If you have questions, look for our Q&A session!

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# THANK YOU

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