



SVIP Demo Week: Machine Learning Program

HELLO FROM MELISSA

Welcome to the virtual Silicon Valley Innovation Program (SVIP) Demo Week: Machine Learning! We are excited to showcase our portfolio of SVIP startups and the valuable partnerships with the global innovation community and the DHS components we support.

This series will demonstrate how SVIP-funded startups have incorporated DHS requirements into their commercial products, expanding their capabilities and providing DHS operational components access to innovative products that solve their most critical mission needs.

These 10 startups have a range of technologies focused on data analytics, object recognition, and language translation.

Thank you to all of our startups, keynote speakers, and panelists for their participation and for bringing information about the important work we do to safeguard our homeland and inspiration to our current and future innovation communities!

Warm regards,
Melissa Oh
SVIP Managing Director

IN THIS PROGRAM

HELLO FROM MELISSA

DEMO WEEK SCHEDULE

DEMO WEEK STARTUPS

ABOUT DHS



WWW.DHS.GOV/SCIENCE-AND-TECHNOLOGY/SVIP

DEMO WEEK SCHEDULE

DAY 1

TUESDAY, MAY 3

- 12:00 PM** Welcome from Melissa Oh, SVIP Managing Director
 - 12:15 PM** Keynote from Palmer Luckey, Founder of Anduril
 - 12:30 PM** Demos
 - 12:35 PM** Planck Aerosystems, Tamr, Laurretta AI, Analytical AI, Synthetik Applied Technologies, Signal
 - 2:05 PM** Break
 - 2:20 PM** Panel: With Great Power Comes Great Responsibility
 - 3:25 PM** Adjourn Day One
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DAY 2

WEDNESDAY, MAY 4

- 12:00 PM** Welcome from Melissa Oh, SVIP Managing Director
- 12:05 PM** Keynote from Dr. Karen Myers, Lab Director, Artificial Intelligence Center, SRI International
- 12:30 PM** Demos
Deep North, mesur.io, myLanguage, Kynamics
- 1:35 PM** Break
- 1:50 PM** Networking Breakouts
 - Breakout #1: Are you a VC or investor? Learn more about SVIP with Melissa Oh, SVIP Managing Director
 - Breakout #2: Are you a startup? Learn more about SVIP with Ron McNeal, SVIP Transition Director & Darryl Kramer, SVIP Associate Director
 - Breakout #3: Can you help us forecast future investments? with Anil John, SVIP Technical Director
- 2:45 PM** Adjourn Day Two

DAY 1 | MAY 3

KEYNOTE SPEAKER

PALMER LUCKEY FOUNDER, ANDURIL



Palmer Luckey is an American inventor, innovator, and entrepreneur. He is the Founder of defense technology company Anduril Industries, designer of the Oculus Rift, a virtual reality head-mounted display, and the Founder of Oculus VR, which was acquired by Facebook in 2014 for \$2.3 billion.

Luckey founded Anduril Industries in 2017 to radically transform the defense capabilities of the U.S. and its allies by fusing artificial intelligence with the latest hardware advancements. At Anduril, Luckey integrates a consumer technology business model with mission-driven objectives, enabling rapid product development and deployment, setting the company apart from other players in the defense industry.



PLANCK

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Planck Aerosystems designs, develops, builds, and deploys advanced solutions to enable unmanned mobility for surveillance, reconnaissance, and force protection. Through four phases of the SVIP, Planck developed an autonomous, truck-based small unmanned aircraft system (UAS) for US Border Patrol agents. The system allows agents to launch, operate, and recover small UAS while maintaining mobility in the off-road environment.



Lauretta.io

LAURETTA AI

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Lauretta AI uses state of the art computer vision solutions for the security, industrial, and property industries. Using privacy preserving technology, Lauretta's system can provide personalized instructions to allow passengers to smoothly navigate a self-service screening process while limiting contact between TSA agents and passengers.



TAMR

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Tamr leverages the scalability of the cloud and the analytic power of machine learning to enable large enterprises to master data for better analytics and operational decision-making. Tamr is working with CBP's Office of Trade to help establish a holistic view of trade entities to help predict and identify threats and opportunities to facilitate compliant trade. Tamr has also developed data visualization and machine learning capabilities to identify opportunities for efficiencies and cost savings among CBP's contracts.



ANALYTICAL AI

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Analytical AI develops novel artificial intelligence solutions. Analytical AI is working with TSA to achieve rapid and accurate classification of Stream of Commerce items in passenger carry-on bags. Currently, they are implementing and testing their algorithm on an Original Equipment Manufacturer (OEM) emulator and aim to have this adaptive algorithm model working in field testing and airport operations soon.

DAY 1 | MAY 3



SYNTHETIK
applied technologies

SYNTHETIK

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Synthetik develops machine learning, computer vision, and data science applications for commercial and federal clients. The SynthetikAI platform provides the TSA with high-quality annotated data to train Automatic Threat Recognition models, machine-assisted annotation, digital unpacking of existing bags, and digital repacking to generate completely new synthetic bags.

Signal®

CIGNAL

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Signal develops cutting-edge capabilities for the rapid training, evaluation, and deployment of advanced CT and X-ray inspection security systems. Signal is developing the ability to generate a diverse library of high-fidelity synthetic CT baggage data to detect improvised weapons, incendiaries, and explosives as well as tools that automatically create tampered versions of synthetic objects.

Panel: With Great Power Comes Great Responsibility

Advances in the field of artificial intelligence and machine learning have rapidly created many opportunities for efficiencies in the workplace, healthcare, consumer products, and security. However, given the need for data for input into AI/ML infrastructures, society is facing the downside of serving up their data, of relying so heavily on technologies to tell us what we think we want to know. Government agencies are investing in research on advancing trustworthy AI and the multi-faceted aspects of social sciences, policy, legal, privacy, civil rights and civil liberties, and ethics to develop technical and governance approaches that build trust in these solutions. This panel will discuss various approaches companies should consider when developing products relying on machine learning and how explainable AI tech could enhance trust with their customers and create a stronger product-market fit.



DR. SEAN WARNICK
MODERATOR
DHS S&T Advanced Computing Branch
Senior Technical Advisor



DR. RYAN ALIMO
National Aeronautics & Space
Administration's Jet Propulsion Lab
Lead Machine Learning Scientist



DR. TOM LU
National Aeronautics & Space
Administration's Jet Propulsion Lab
Senior Researcher, AI, Machine
Learning and Computer Vision



DR. FARROKH VATAN
DHS S&T Advanced Computing Branch
AI/ML Research Area Lead

DAY 2 | MAY 4

KEYNOTE SPEAKER

DR. KAREN MYERS LAB DIRECTOR FOR SRI INTERNATIONAL'S ARTIFICIAL INTELLIGENCE CENTER



Dr. Myers' research focuses on intelligent systems that facilitate man-machine collaboration. Her expertise includes autonomy, multi-agent systems, automated planning and scheduling, and intelligent assistants. She has led the development of several AI technologies that have been successfully transitioned into operational use in areas that span collaboration tools, task management, and end-user automation.

From Research to Reality: Lessons Learned in Building and Deploying AI Technologies

Successful deployment of AI technologies requires consideration of many factors beyond the core algorithmic elements. Drawing on experiences with Siri, Intuitive Surgical, and Nuance (among others), this talk summarizes lessons learned at SRI in transitioning research to both the commercial sector and Government customers. It also presents key challenges that are limiting broader use of AI currently, along with promising research directions being pursued to address those challenges.



DEEP NORTH

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Deep North is an AI video analytics company that converts video footage from physical locations into actionable insights. Deep North has been working with TSA to apply AI and Computer Vision based solutions to increase security effectiveness at airports while reducing wait times to improve passenger experience in the wake of the COVID-19 pandemic and necessary social distancing requirements.



MESUR.IO

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Using AutoML and AI, mesur.io has developed the Open Food Trust™ platform to facilitate visibility into the food supply chain using open data standards. The Open Food Trust™ platform brings traceability, field conditions, and food risks together in one place, so that the farmer, food processors, and global leaders in food delivery can access their data, record the information they need, while meeting current and future regulations, and share that data securely with appropriate regulatory agencies.

DAY 2 | MAY 4



MYLANGUAGE

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myLanguage is a mobile language translation company developing technology that enables people to have a fluent spoken conversation with someone who speaks a different language, without requiring an Internet connection. With over 7 million downloads and a 4.7 star rating in the iOS App Store, myLanguage is also the winners of TechCrunch Disrupt's Best Mobile App & Audience Choice Awards.

KYNAMICS

KYNAMICS

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Founded by experienced Silicon Valley Engineers, Kynamics' mission is to empower intelligent voice-based interfaces for day-day software applications. Their first product, called Talkbox, brings the power of a voice-based assistant to an enterprise team thereby improving productivity. TalkBox provides high performance offline natural language understanding in multiple popular languages to support voice-based interactions with smartphone or browser based apps. It supports language translation, actions and question-answering based on iterative construction of a knowledge-base.

Networking Breakouts

• BREAKOUT #1: ARE YOU A VC OR INVESTOR? LEARN MORE ABOUT SVIP

Meet Melissa Oh, SVIP's Managing Director, to understand how SVIP works with the entrepreneur community to harness emerging commercial technologies and identify opportunities of mutual benefit for both commercial success and national security.



MELISSA OH

Managing Director, Silicon Valley Innovation Program, DHS

• BREAKOUT #2: ARE YOU A STARTUP? LEARN MORE ABOUT SVIP

Meet Ron McNeal, SVIP's Transition Director, and Darryl Kramer, SVIP's Associate Director, to find out how DHS works with startups, lowering the barrier of entry to government contracts and about the current funding opportunities available.



RON MCNEAL

Transition Director, Silicon Valley Innovation Program, DHS



DARRYL KRAMER

Associate Director, Silicon Valley Innovation Program, DHS

• BREAKOUT #3: CAN YOU HELP US FORECAST FUTURE INVESTMENTS?

Meet Anil John, SVIP's Technical Director, as he leads a discussion to exchange ideas for where there has been limited investment in machine learning whether in government or in the commercial market, and where more attention should be applied.

ANIL JOHN

Technical Director, Silicon Valley Innovation Program, DHS



SVIP | MEET THE TEAM



MELISSA OH
Managing Director



ANIL JOHN
Technical Director



RON MCNEAL
Transition Director



DARRYL KRAMER
Associate Director



KIZZY BUNDY
Innovation Support Associate



ANGELA CARTER
Innovation Support Associate



CHI HICKEY
Innovation Support Associate



PAUL HUNT
Innovation Support Associate



SHANNON GREGORY
Innovation Support Associate



JENNIFER MEKIS
Innovation Support Associate



MARK PROTACIO
Innovation Support Associate



SEAN VANEK
Innovation Support Associate

ABOUT DHS SCIENCE & TECHNOLOGY

As the research and development (R&D) arm of the Department of Homeland Security (DHS) and the Science Advisor to the Secretary, the **Science and Technology Directorate (S&T)** conducts basic and applied research, development, testing, and evaluation activities in alignment with the DHS mission. S&T works hand in hand with fellow DHS component agencies, first responders at all levels, emergency management and public safety personnel, and partners from across the public and private spectrums to develop timely and innovative solutions to meet today's challenges and tomorrow's opportunities. Uniquely positioned with access to today's innovators and front-line homeland security professionals, S&T leverages a network of partners across the scientific community to provide the experiences, resources, and knowledge products necessary to help prevent, respond to and recover from hazards and threats.

Innovation is the driving force of the work at S&T, and S&T casts a wide inclusive net to find and use the best technologies. The **Office of Industry Partnerships' (OIP)** role in S&T is to engage industry and facilitate partnerships between S&T and private sector innovators to advance commercial technology solutions that address homeland security challenges. OIP manages a variety of contracting mechanisms and funding opportunities to support S&T's partnership goals with the private sector and works to transfer federal R&D technology products to the commercial market for use by homeland security operators.

The **Silicon Valley Innovation Program (SVIP)** is one of S&T's innovation funding programs that expands DHS's reach to find new technologies that strengthen national security with the goal of reshaping how government, entrepreneurs, and industry work together to find cutting-edge solutions. The program reaches out to innovation communities across the nation and around the world to harness the commercial R&D ecosystem for technologies with government applications and to co-invest in and accelerate technology transition-to-market. SVIP offers U.S. and international startups up to \$2M in non-dilutive funding over 24 months to carry out prototype projects and possibly transition successful projects to production.



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