Public Private Partnership Security and Resilience Seminar Series

THE SESSION WILL BEGIN SHORTLY

AGENDA

- Introductions and Housekeeping
- Speakers
- Q&A
- Session Wrap Up

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Series Overview

The 2024 **Public Private Partnership Security and Resilience Seminar Series** is sponsored by the Idaho Office of Emergency Management. In collaboration with volunteer speakers and local, state, and federal partners including the Oregon Department of Emergency Management, Cybersecurity and Infrastructure Security Agency, and Albertsons Companies.

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- Introductions and Housekeeping
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G&H Resource Spotlight

The **Community Lifeline Status System (CLSS)** is a DHS S&T funded, no-cost tool that operationalizes FEMA's Community Lifeline construct, built on Esri available to all State, Tribal, Territorial, and local emergency management agencies in early 2025.

To learn more about the tool and deployment requirements, scan the QR code.

Agenda

Session 3: **Safely Leveraging Artificial Intelligence in the Workplace**

- Welcome & Housekeeping
- Speakers
- Q&A
- Closing

Learning Outcomes

Session 3: Safely Leveraging Artificial Intelligence in the Workplace Seminar

- Understand the role of Artificial Intelligence (AI) in enhancing the security and resilience of the emergency services sector (ESS).
- Identify key challenges and benefits of integrating AI into workplace environments, especially in emergency services.
- Explore real-world case studies demonstrating the use of AI in fire, law enforcement, and emergency medical services.
- Learn about best practices and guidelines for safely implementing AI tools and technologies in workplace operations.

Housekeeping

- Cameras and microphones are disabled.
- Please use the Q&A feature in the upper right corner of your page.
- If you encounter connectivity issues with Teams Live, try refreshing or restarting your browser or Teams App.
- At the session's end, there will be an evaluation to gather your feedback which is crucial to us for improving future sessions.
- After the session, you may complete the Knowledge Assessment for IACET CEUs.
- Recordings of this session will be available for playback following the event.

IACET CEUs

- G&H is accredited by the International Accreditors for Continuing Education and Training (IACET) and offers IACET Continuing Education Units (CEUs) for its learning events that comply with the ANSI/IACET Continuing Education and Training Standard. IACET is recognized internationally as a standard development organization and accrediting body that promotes quality of continuing education and training.
- IACET CEUs are earned by attending the entirety of a session and achieving a 70% or higher score on a post-webinar Knowledge Assessment. For every 10-hours of in-person or virtual classroom time, a learner can earn 1 IACET CEU.
- For questions about the IACET CEU process, please contact G&H at training@ghinternational.com or +1 202-955-9505.
- For additional information about IACET or the ANSI/IACET Continuing Education and Training Standard, please contact IACET directly at info@iacet.org.

G&H Policy

G&H **Proprietary Interest Policy** requires instructors to disclose any vested interests in products or materials used in the learning event, including royalties or profits from endorsements. Contact G&H with concerns about policy compliance.

G&H **Anti-Discrimination Policy** ensures a learning environment free from sexual or any form of unlawful harassment or discrimination. Contact us directly with any concerns about policy breaches. G&H is eager to collaborate with you in Continuing Education and Training with IACET/CEUs.

If there are any breaches of either policy, please contact G&H at training@ghinternational.com or +1 202-955-9505.

Speaker:
Joe Larkin

CISA | CYBERSECURITY AND INFRASTRUCTURE SECURITY AGENCY

Emergency Services Sector: Safely Leveraging Artificial intelligence in the Workplace

May 1, 2024

Cybersecurity and Infrastructure Security Agency (CISA)

As America's Cyber Defense Agency and the National Coordinator for critical infrastructure resiliency and security, CISA leads the national effort to understand, manage, and reduce risk to the cyber and physical infrastructure that Americans rely on every hour of every day.

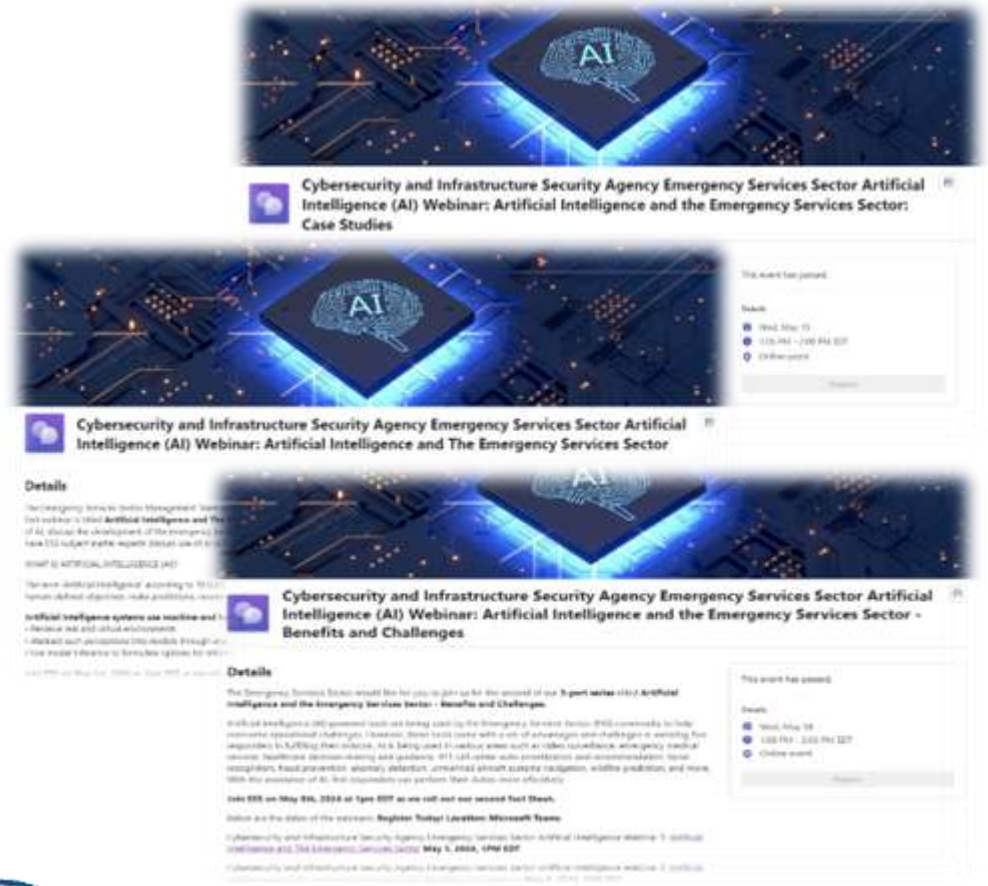
Background: ESS AI Working Group to Date

Met bi-weekly since August 2023

Discussed important and emerging AI topics

Developed draft and final products to assist the ESS

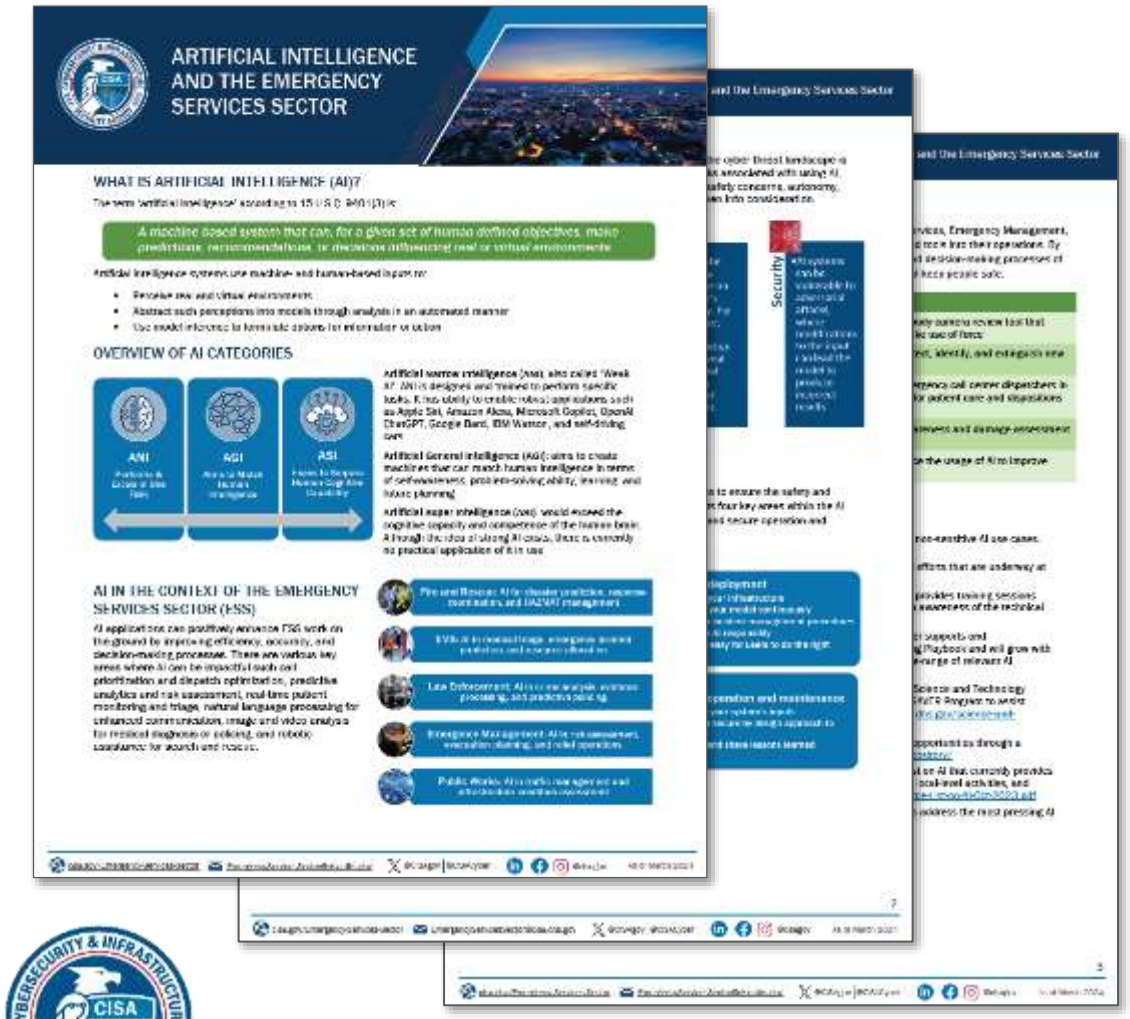
AI Webinars



3-part series: Artificial Intelligence and the Emergency Services Sector - Benefits and Challenges, AI Case Studies and AI and the ESS

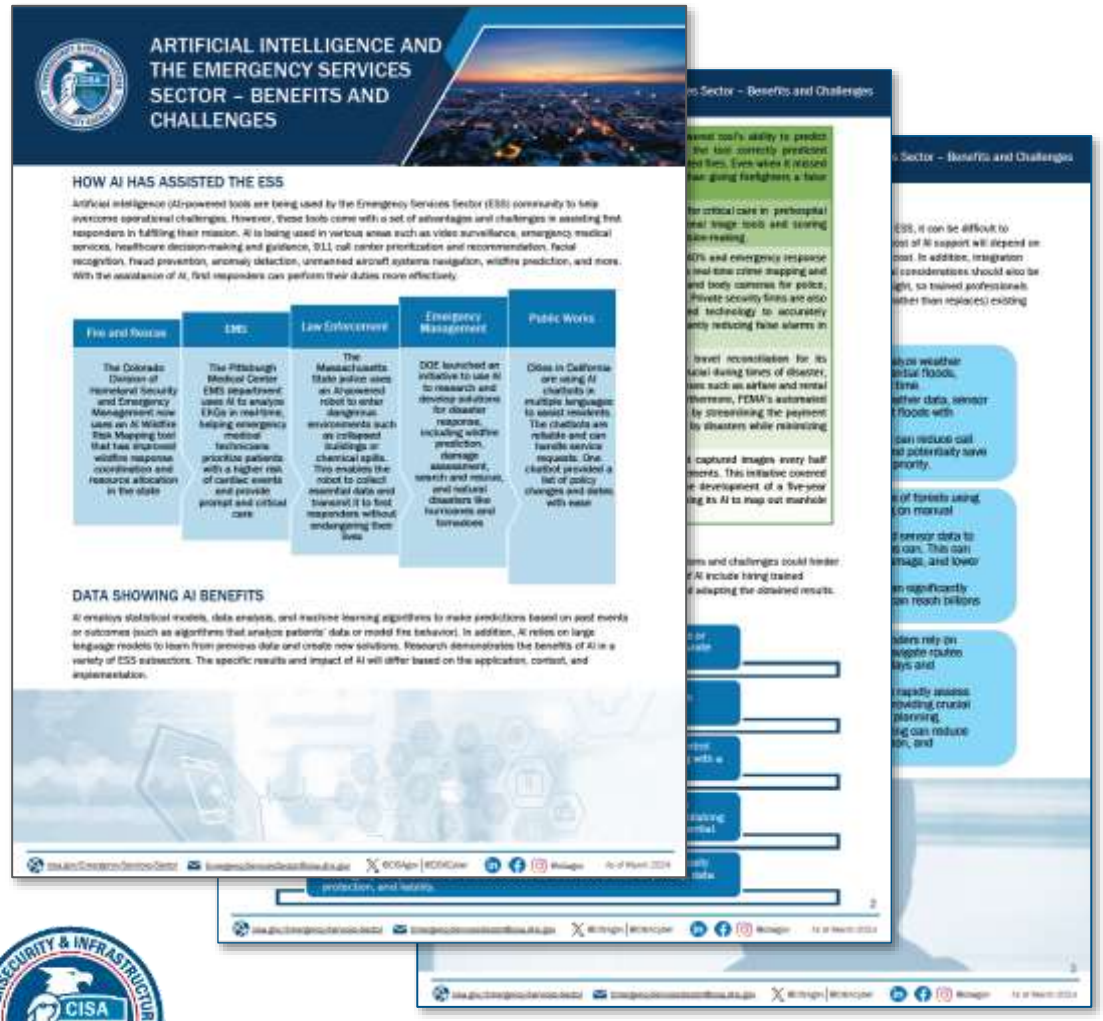
- Provide an overview of AI
- Discuss the development of ESS AIWG
- Use of AI in Emergency Services

ESS AI Factsheet 1



- What is AI?
- Categories
- ESS Context
- Adversarial Risk
- Security Considerations
- ESS Use
- Tools, Training, & Programs
- References

ESS AI Factsheet 2 – Benefits and Challenges



ESS AI Context:

- How AI has Assisted the Sector
- General AI Benefits
- General AI Limitations
- AI versus Trained Professionals
- References

ESS AI Factsheet 3 – Case Studies

Case Studies and References per Subsector:

- Fire and Rescue Services
- Emergency Medical Services
- Law Enforcement
- Public Works
- Emergency Management

ESS AI Newsletters

Developed and distributed four editions of a monthly newsletter, highlighting:

- Recent advancements in AI technology and their implementation in ESS
- Updates on AI-related federal legislation, policies, and frameworks
- Insights into AI strategies and best practices within the industry
- Recent and impactful AI case studies

CISA Resources

- **CISA AI Resources -** https://www.cisa.gov/ai
- **CISA Road map for AI** - https://www.cisa.gov/resources-tools/resources/roadmap-ai
- **Safety and Security Guidelines for Critical Infrastructure Owners and Operators** - https://www.dhs.gov/publication/safety-and-security-guidelines-critical-infrastructure-owners-and-operators
- **Joint Cyber Defense Collaborative (JCDC) Artificial Intelligence Cyber Tabletop Exercise** - https://www.cisa.gov/topics/partnerships-and-collaboration/joint-cyber-defense-collaborative/Joint-Cyber-Defense-Collaborative-Artificial-Intelligence-Cyber-Tabletop-Exercise
- **Pilot for Artificial Intelligence Enabled Vulnerability Detection fact sheet** - https://www.cisa.gov/resources-tools/resources/pilot-artificial-intelligence-enabled-vulnerability-detection

Key Takeaways

- Created a comprehensive fact sheet on general AI applications in emergency services
- Produced an in-depth fact sheet on benefits and challenges of AI applications in emergency services.
- Compiled a fact sheet highlighting relevant case studies in the field.

Hosted Educational Webinar Series:

- Conducted a successful 3-part webinar series based on the fact sheets providing valuable insights and facilitated discussions on AI and emergency services.

Ongoing Communication and Development:

- Launched monthly sector newsletters addressing emerging challenges and developments in AI for emergency services.
- Continuously evolving content to stay ahead of trends and issues in the field.

Questions?

Please send comments, questions, and ideas for ESS to EmergencyServicesSector@cisa.dhs.gov

Speaker:
Ashley Shields

August 07, 2024

Ashley Shields
Digital Twin Analytics Lead Professional
Ashley.Shields@INL.gov

Digital Innovation Center of Excellence

Developing the First Digital Twin of a Nuclear Reactor Through the Integration of DICE Pillars of Excellence

Battelle Energy Alliance manages INL for the
U.S. Department of Energy's Office of Nuclear Energy

Idaho National Laboratory

Artificial Intelligence

Artificial intelligence (AI) in energy systems has a game-changing potential in automating expensive and manual human activities. AI focuses on emerging architectures, methodologies, and tools that will drive revolutionary advancements in scientific applications.

Instrumentation and Controls

An essential component of digital innovation. The integration of Intstumentation and Controls technologies in the development of Digital Twins for modern industrial applications is a key element of digital innovation.

Practice and Culture

The practice/culture is the realization of digital innovation and digital engineering within our national laboratory system, industry, and academic partners.

Digital Twin

Digital twins are the computational simulation of a physical process or system that has a live link to the physical system, enabling enhanced verification of the simulation, control of the physical system, and analysis of trends via artificial intelligence and machine learning.

Digital Thread

The digital thread is defined as integrating systems and data together to trace connections in data across data sources and across the lifecycle of a program or asset. The result of this effort is a holistic view that empowers new insights and prevents losses caused by siloed data.

Decision Science, Visualization and Human Computer Interaction

Using behavioral economics, game theory, statistics, and risk analysis to develop models and simulations that shed light on how human behavior affect decisions.

Cyber & Data Resilience

Data resilience represents the safeguards and validation of integrity with data which is utilized in the training of machine learning models.

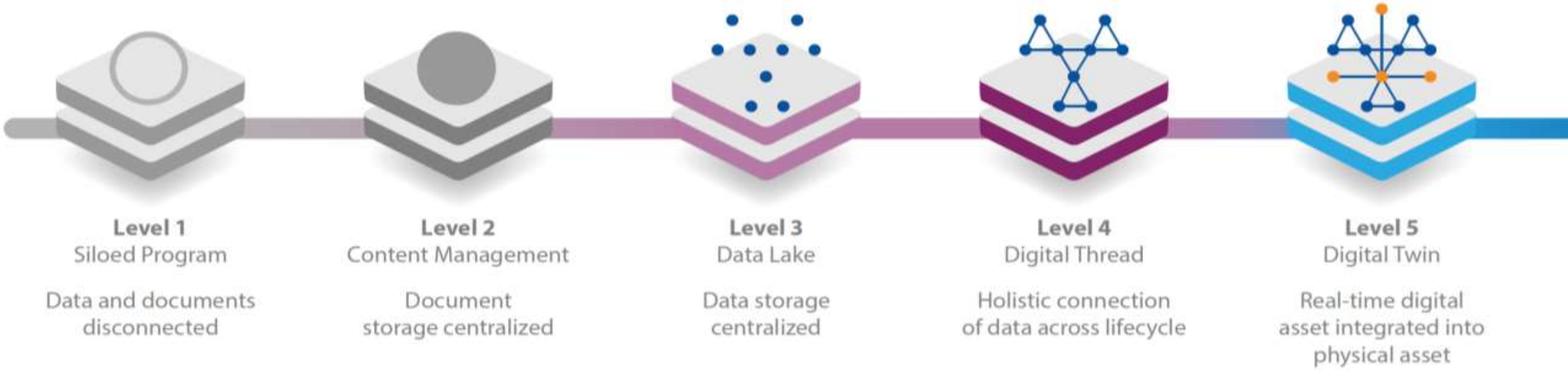
Computing Platforms

Computing platforms represent the computational architectures with the right-sized deployments of high performance computing, public/community cloud, and edge device computing.

What are Digital Twins?

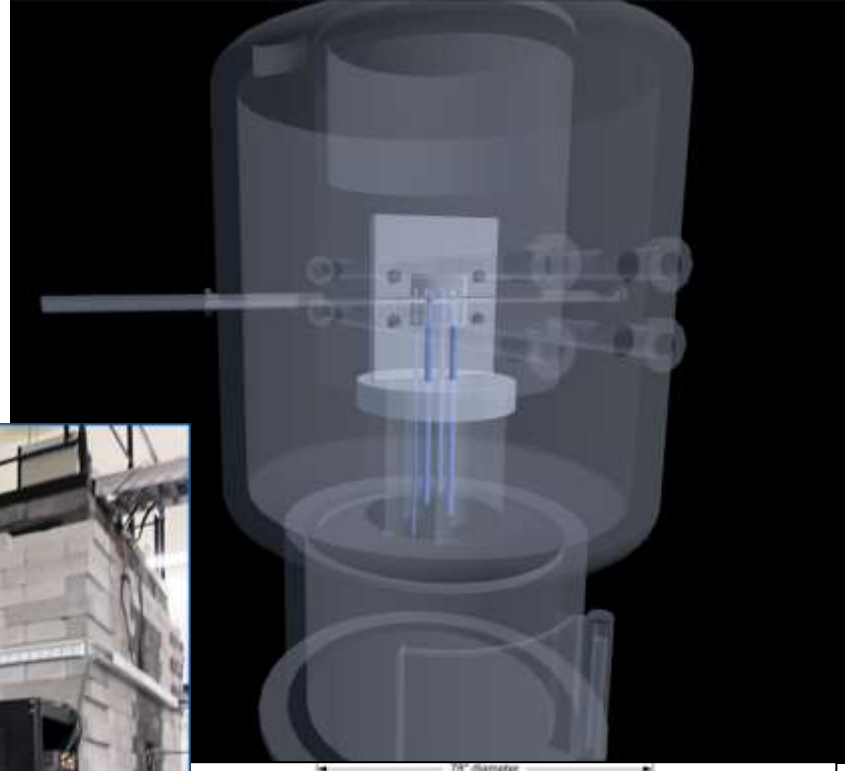
Digital engineering transforms the way we **design** and **operate** energy assets:

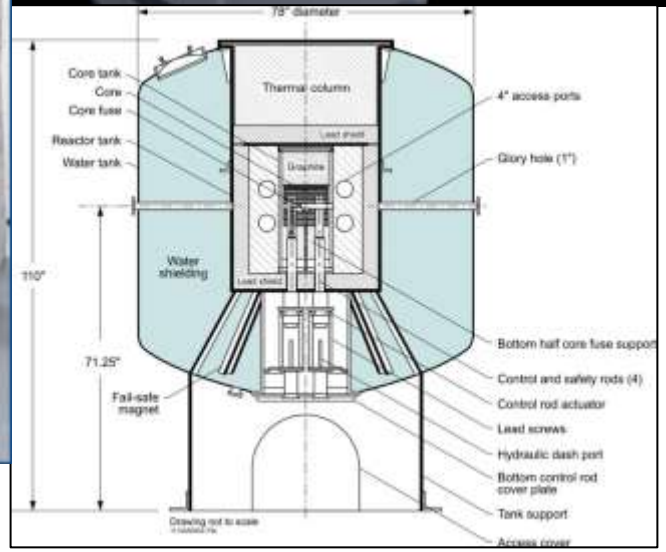
1. Delivers *semi-autonomous design*, *autonomous operation*, and *real-time anomaly detection*
2. Drives research across compute platforms with integrated **human centered visualization**
3. Integrates threads of **data**, **visualizations**, AI/ML, and physics **models** into a cohesive **digital twin**



AGN-201 Digital Twin Overview

- The AGN-201 is a 5 W reactor
  - Nine fuel disks of polyethylene with uranium dioxide compose the core
  - Thermal fuse in center of core acts as a safety mechanism to split core
  - Graphite, lead, and water surround core (neutron/gamma shield)
- Goal: Detect proliferation scenarios using a combination of physics models and AI/ML
  - Red/Blue team exercise





Instrumentation and Controls

- Analog data acquisition system (DAS)
  - DAS had to be digitized and made remotely accessible

Instrumentation and Controls

An essential component of digital innovation. The integration of Intstumentation and Controls technologies in the development of Digital Twins for modern industrial applications is a key element of digital innovation.

AGN-201 Data Acquisition System

Start-up Channel

Reactor Period

Reactor Temperature

Reactor Power Linear Channel & Log Channel

Control Rod Positions Fine & Coarse

Operator Action Logging

Reactivity from Inverse Kinetics

Control and Safety Rod Status

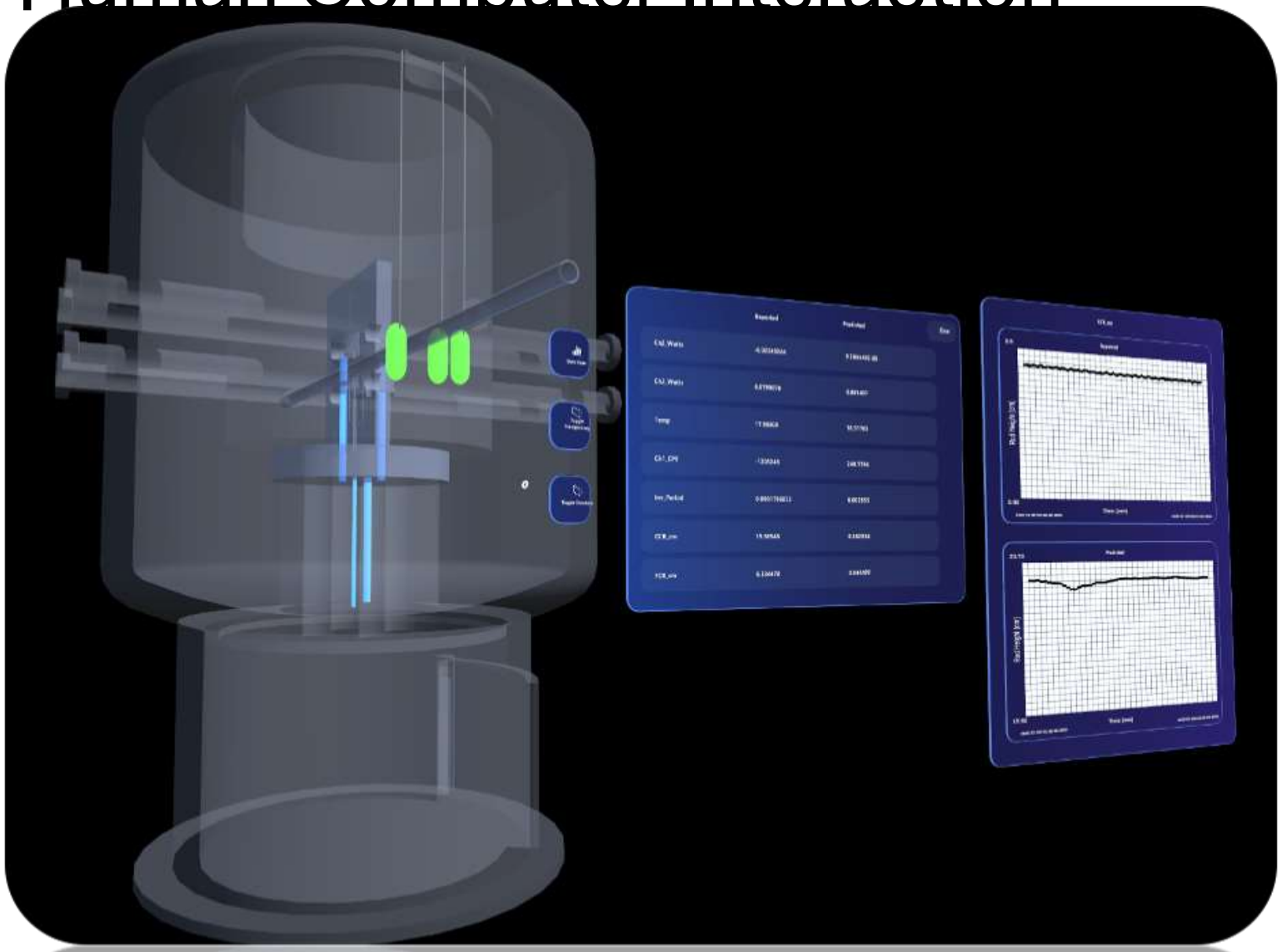
Computing Platforms

- Development
  - Low-Lift Exploration: Local
  - Heavy-Lift Exploration: HPC
    - https://inl.gov/hpc/
- Final Implementation
  - Azure Government Cloud

Computing Platforms

Computing platforms represent the computational architectures with the right-sized deployments of high performance computing, public/community cloud, and edge device computing.

Decision Science, Visualization, and Human Computer Interaction

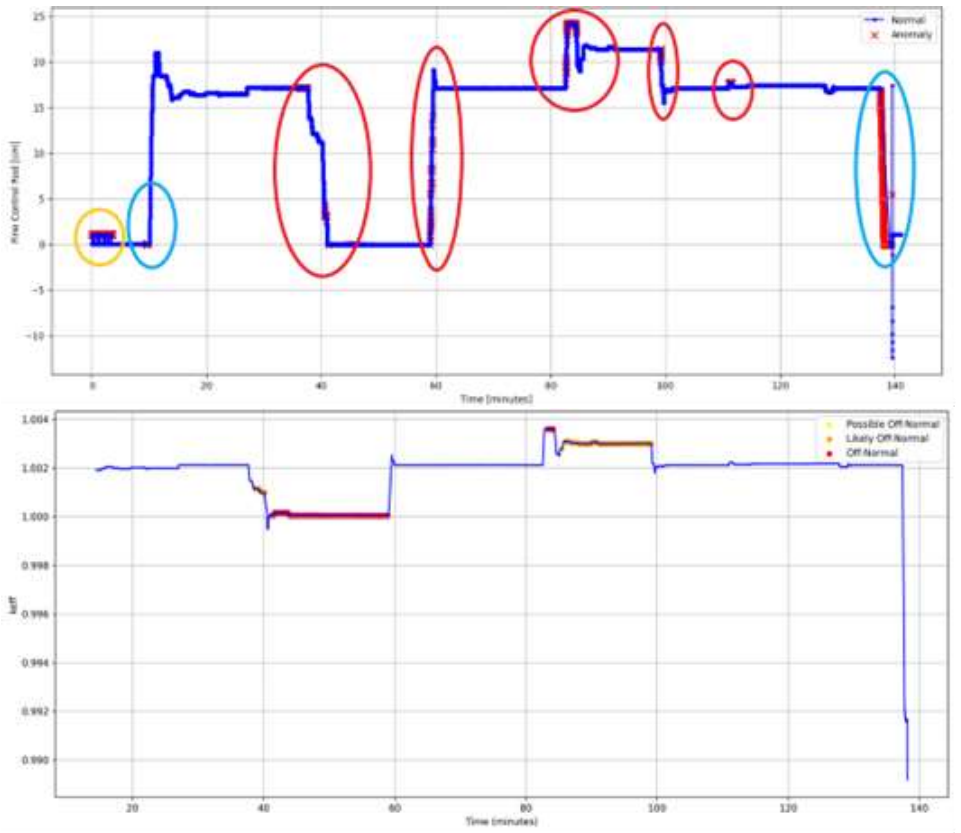


Decision Science, Visualization and Human Computer Interaction

Using behavioral economics, game theory, statistics, and risk analysis to develop models and simulations that shed light on how human behavior affect decisions.

Artificial Intelligence

- Numerical Prediction
  - Classic Methods: eNet, MLP Regression
  - Modern Methods: TabNet, FT Transformer, GrowNet
  - Timeseries Methods: LSTM
- Anomaly Detection
  - Isolation Forest



Artificial Intelligence

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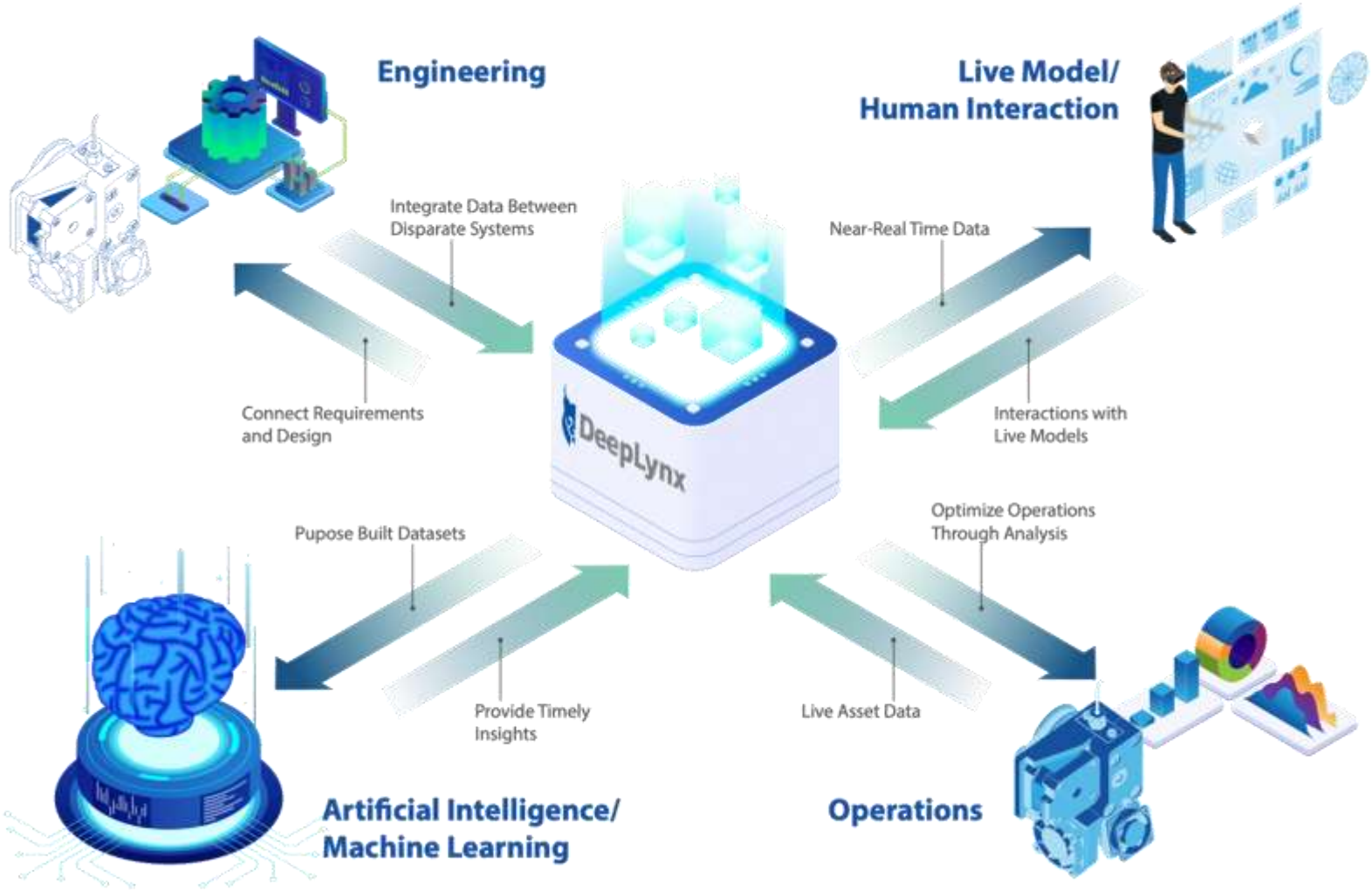
Digital Thread

- Building the glue between (threads) components



Digital Thread

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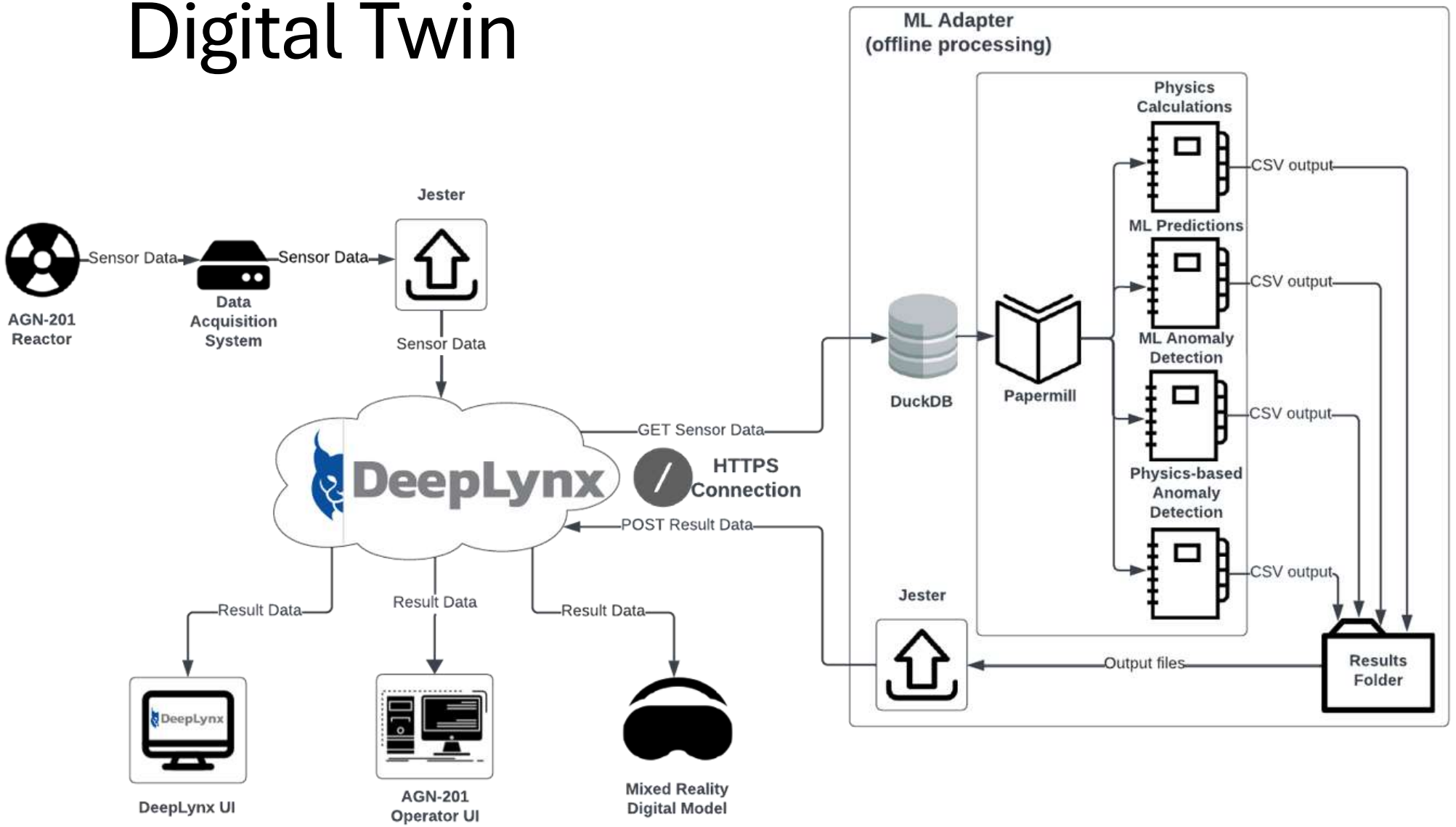
Digital Twin



Digital Twin

Digital twins are the computational simulation of a physical process or system that has a live link to the physical system, enabling enhanced verification of the simulation, control of the physical system, and analysis of trends via artificial intelligence and machine learning.

Cyber & Data Resilience

- Cyber: Data moves from the reactor but never to the reactor
  - No control functionality
  - Government AWS

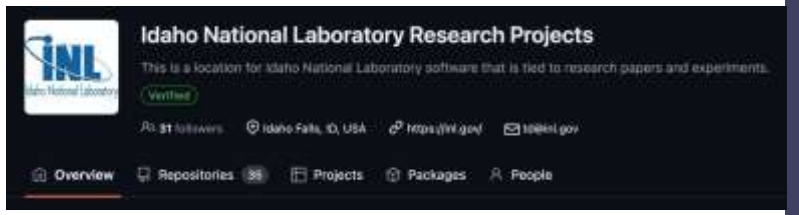
- Data
  - Cross Validation of Model Performance
  - Verification of Predictions vs Truth
  - Assessments of drift

Cyber & Data Resilience

Data resilience represents the safeguards and validation of integrity with data which is utilized in the training of machine learning models.

Practice and Culture

- Opensource software
- Idaho State University Collaboration
- Intern Engagement
  - Idaho State University
  - University of Texas, San Antonio
  - Oregon State University
- Presentations + Publications
  - Conferences, Government, Industry, National Labs, +++



Idaho State University

Oregon State University

UTSA ROADRUNNERS

Practice and Culture

The practice/culture is the realization of digital innovation and digital engineering within our national laboratory system, industry, and academic partners.

Thank you! I’m happy to answer any questions.

- DICE Director + Principal Investigator: Christopher.Ritter@inl.gov
- AGN-201 Reactor: ChadPope@isu.edu
- Neutronics: Ryan.Stewart@inl.gov
- Data Science: Ashley.Shields@inl.gov
- Digital Thread: Johnathan.Darrington@inl.gov

Idaho National Laboratory

Battelle Energy Alliance manages INL for the U.S. Department of Energy's Office of Nuclear Energy. INL is the nation's center for nuclear energy research and development, and also performs research in each of DOE's strategic goal areas: energy, national security, science and the environment.

Speaker:
Josh Webster

Artificial Intelligence in Emergency Services

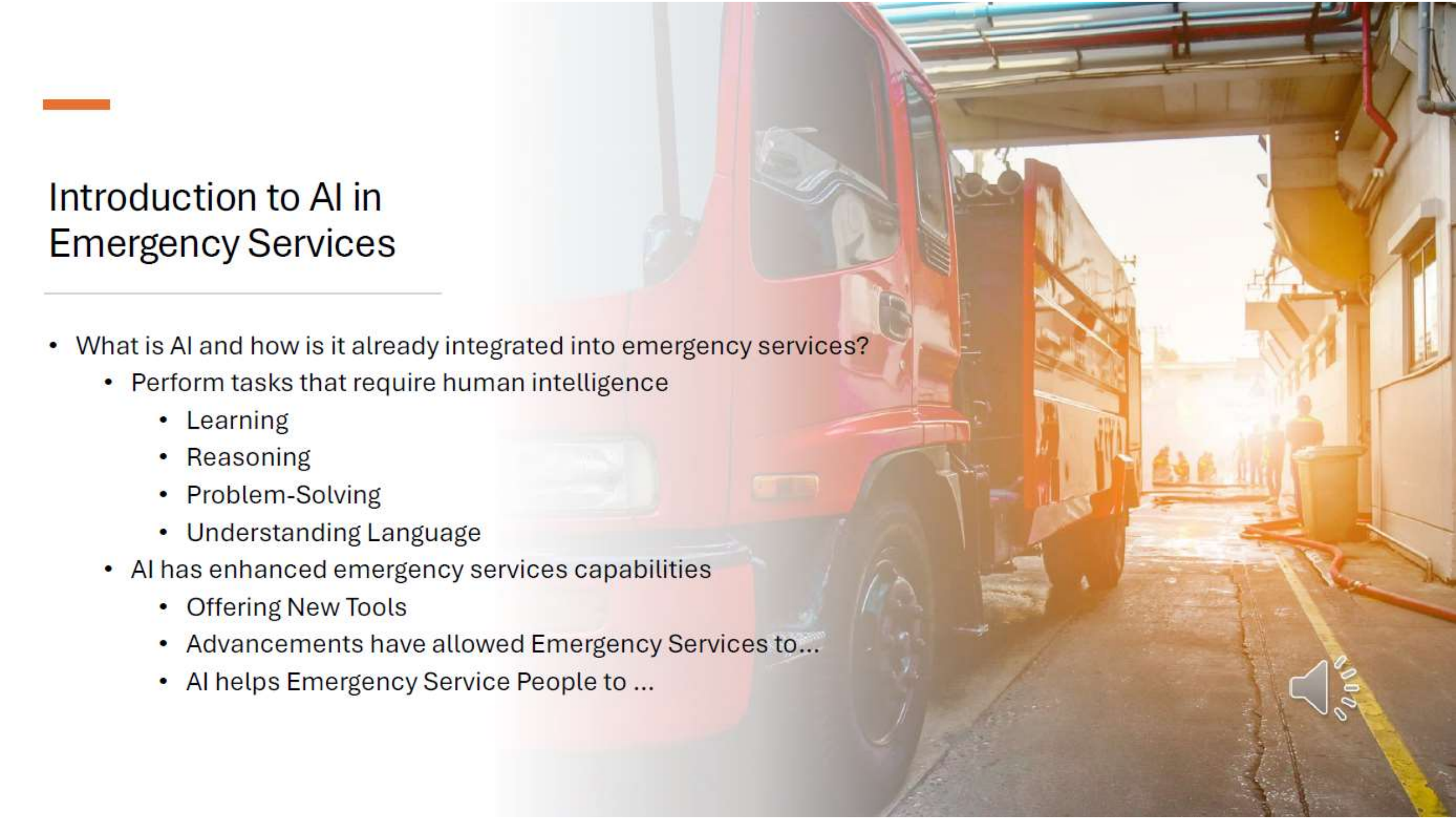
Benefits

Exploring AI in Emergency Services

Scope and Objectives

Introduction to AI in Emergency Services

- What is AI and how is it already integrated into emergency services?
  - Perform tasks that require human intelligence
    - Learning
    - Reasoning
    - Problem-Solving
    - Understanding Language
  - AI has enhanced emergency services capabilities
    - Offering New Tools
    - Advancements have allowed Emergency Services to…
    - AI helps Emergency Service People to …



Scope of this Webinar

- Cover These Sectors
  - Fire & Rescue
  - Emergency Medical Services (EMS)
  - Law Enforcement (LE)
  - Emergency Management
  - Public Works
- Each Sector
  - Overview
  - Benefits

Objectives

- Educate on AI Applications
- Highlight the benefits of AI for each sector
- Discuss challenges AI presents for each sector
- Promote ethical practices when using AI
- Encourage innovation and adaptation
- Look at future development
- Identify collaboration opportunities

What I hope you learn…

- Understanding of AI Technologies
- Appreciate the Benefits
- Insight into Ethical Deployment
- Motivation to Embrace Innovation
- Engage in Ongoing Dialogue
- Collaborate and Network

AI in Fire and Rescue

Enhancing Safety and Efficiency Through Advanced Technologies

Overview of AI applications in Fire and Rescue

- Predictive Analytics
- Resource Allocation
- Fire Spread Simulations
- Drone Surveillance
- Smart Detection Systems
- Enhanced Communication

Benefits of AI in Fire and Rescue

- Improved Response Efficiency
- Increased Safety
- Enhanced Situational Awareness
- Predictive Capabilities for Prevention
- Resource Management Optimization
- Training & Simulation Enhancement
- Post-Incident Analysis & Learning

AI Products for Fire and Rescue

- AUDREY
  - Still in Development & Testing
  - Not Commercially Available
- FLORIAN Software
  - https://3aminnovations.com/florian/
  - $600/yr - $8500/yr
- AI-Powered Drones
  - HZH CF30 Urban Firefighting Drone – with Fire Fighting Missile
    - $38,000 - $44,000
- AI-Driven Monitoring Systems
- Virtual & Augmented Reality Training Tools
  - https://avatarpartners.com/
- Maternal Voice Smoke Alarms

AI in Emergency Medical Services (EMS)

Revolutionizing Patient Care with Artificial Intelligence

Overview of AI applications in EMS

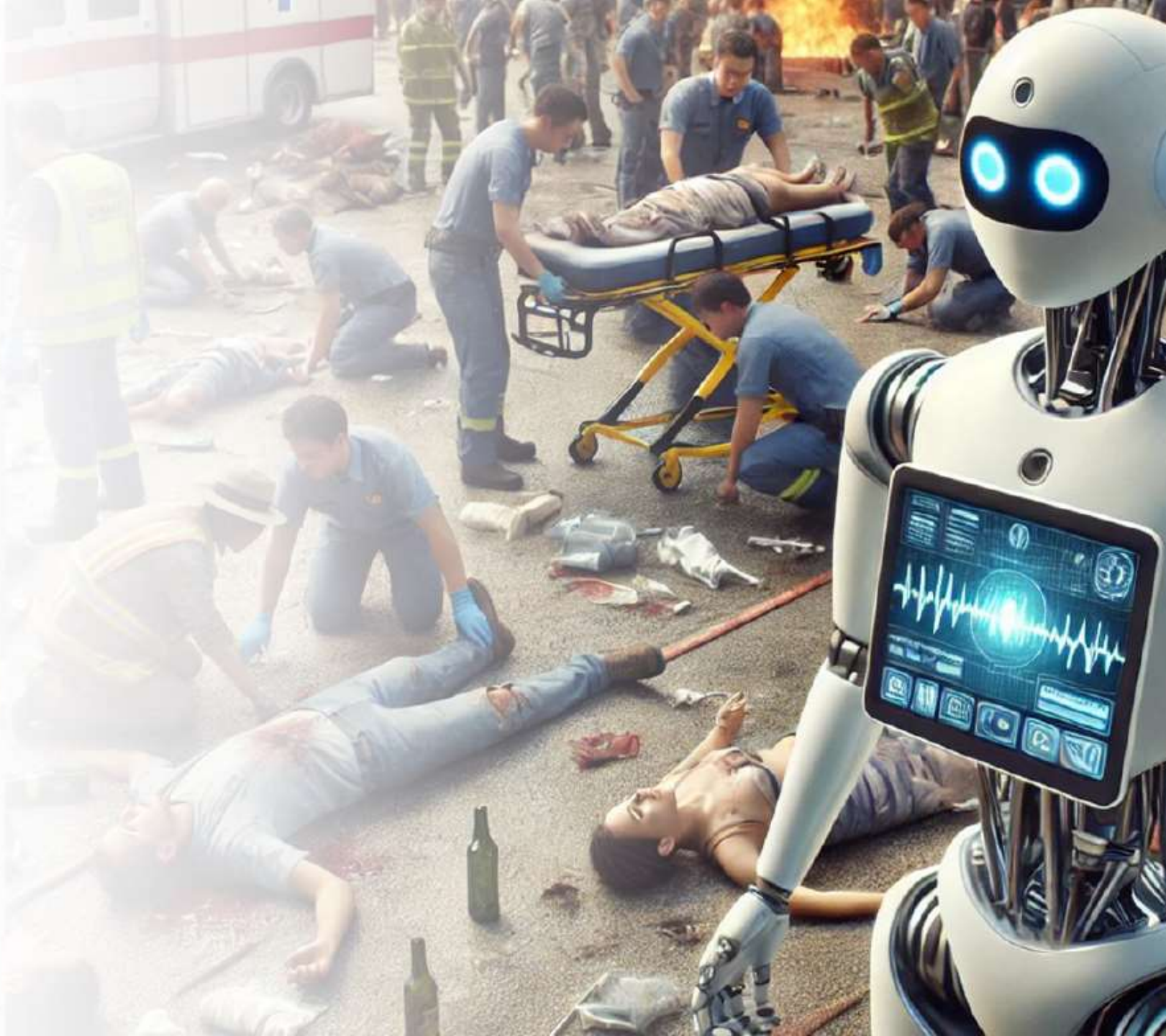
- Automated Triage System
- Predictive Analytics for Resource Allocation
- Enhanced Dispatch & Communication
- Remote Patient Monitoring
- Medical Imaging & Diagnostics
- Decision Support Systems
- Training & Simulation

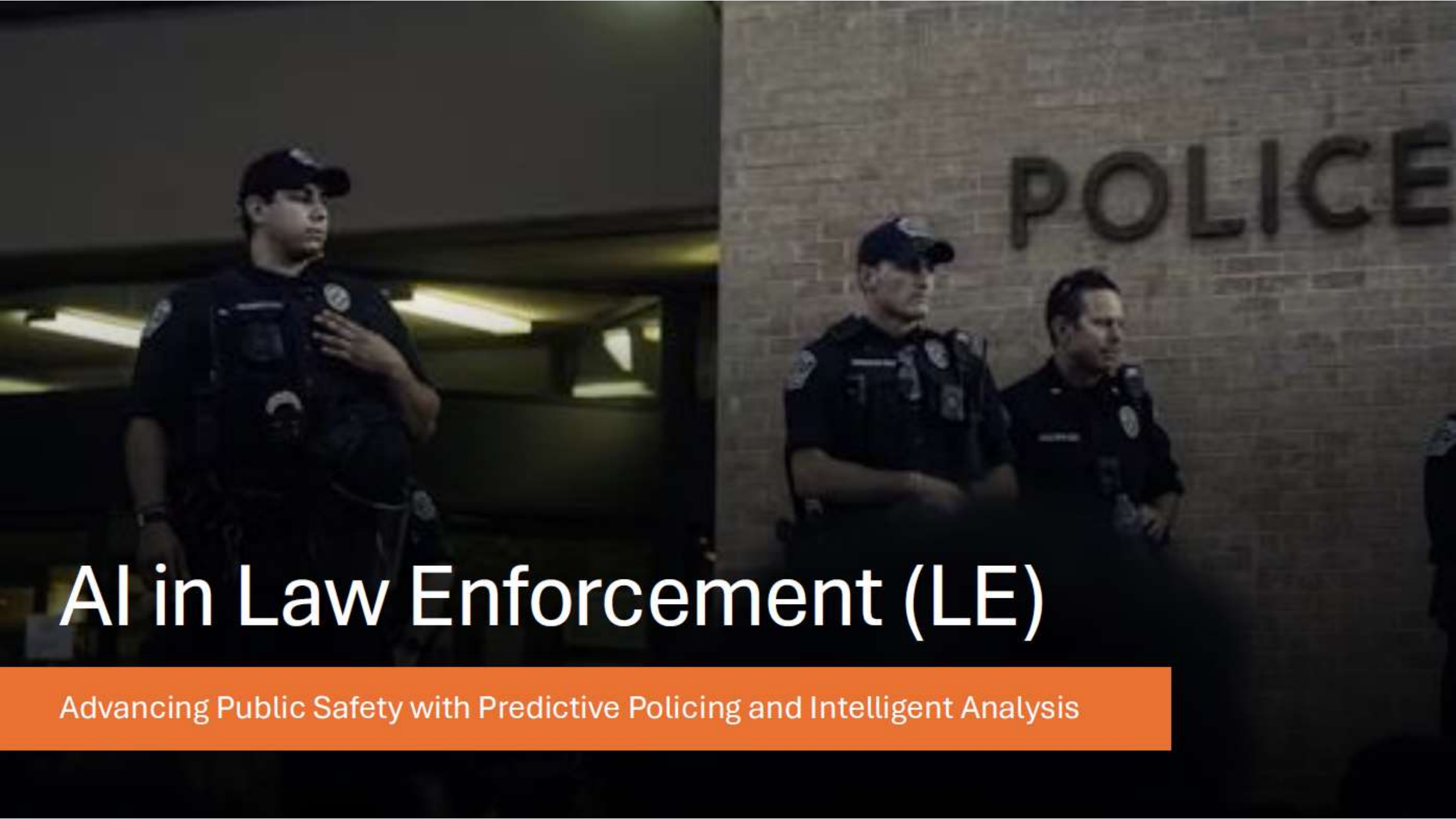
Benefits of AI in EMS

- Faster Decision-Making
- Reduced Cognitive Load
- Enhanced Situational Awareness
- Improved Patient Outcome
- Efficient Resource Utilization
- Continuous Learning & Improvement
- Professional Development

AI Products for EMS

- Smart EMS by Mediwave
- Corti AI Assistant
- Prepared Live
- COMPOSER
- Infermedica’s Patient Triage Tool
- Surec





AI in Law Enforcement (LE)

Advancing Public Safety with Predictive Policing and Intelligent Analysis

Overview of AI applications in LE

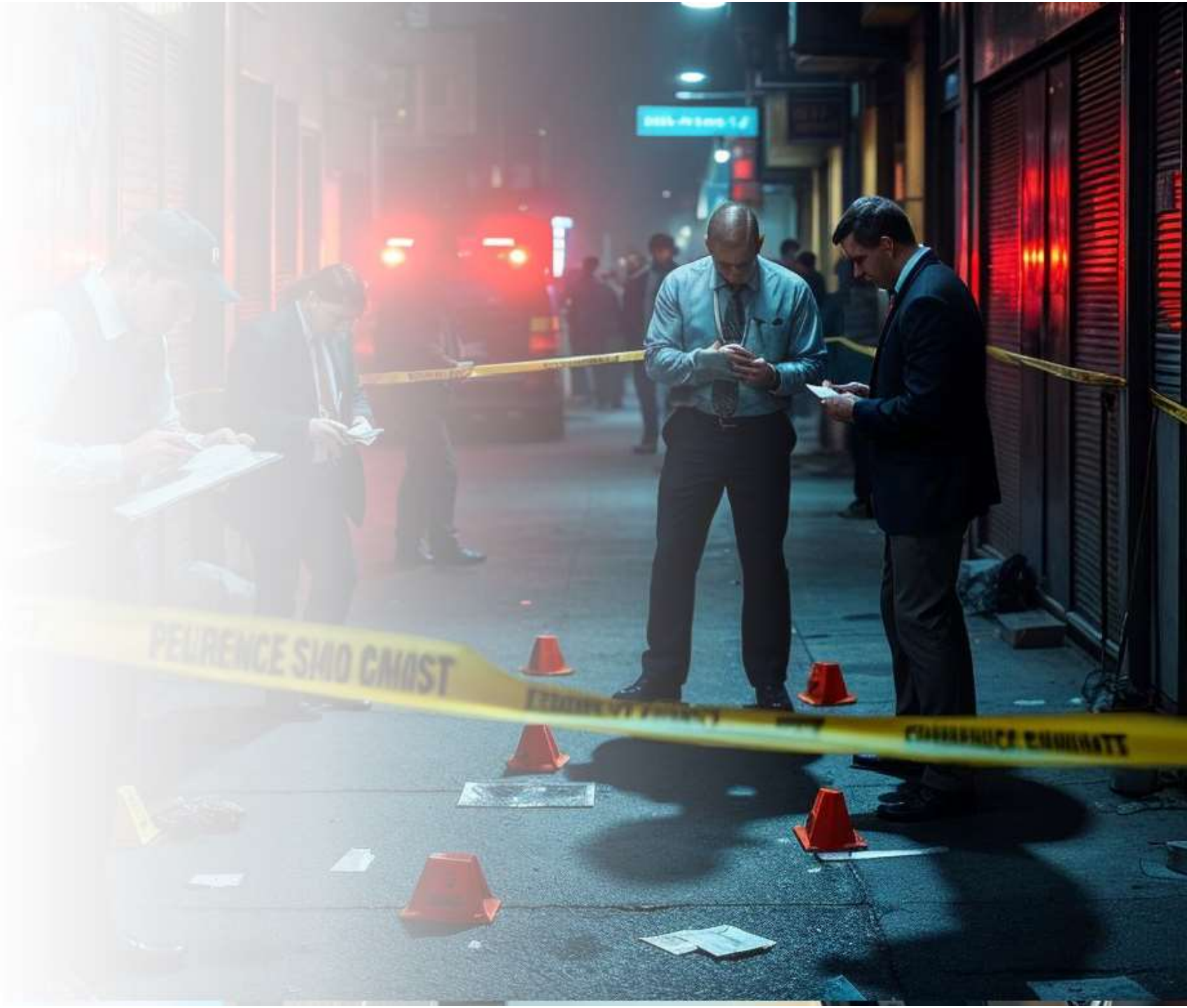
- Predictive Policing
- Facial Recognition Technology
- Automated License Plate Recognition
- Digital Evidence Analysis
- Robotics & Drones
- Chatbots & Virtual Assistants
- Training Simulators

Benefits of AI in LE

- Enhanced Crime Predictions & Preventions
- Improved Surveillance & Monitoring
- Efficient Data Processing
- Provides Decision Making Support
- Automated Reporting & Paperwork
- Training Simulations
- Public Safety & Emergency Response

AI Products for LE

- Veritone IDentify
- Veritone Illuminate
- Axon Draft One
- Fuses AI
- ShotSpotter
- Genetec Clearance



AI in Emergency Management

Optimizing Response and Recovery with Intelligent Solutions

Overview of AI applications in Emergency Management

- Disaster Prediction & Risk Assessment
- Resource Allocation & Logistics
- Damage Assessment
- Crisis Mapping & Analysis
- Public Information & Communication
- Simulation & Training
- Recovery & Rebuilding

Benefits of AI in Emergency Management

- Improved Disaster Preparedness & Response
- Enhanced Situational Awareness
- Optimized Resource Allocations
- Efficient Damage Assessment
- Communication & Information Dissemination
- Recovery & Rebuilding Support
- Training & Simulation

AI Products for Emergency Management

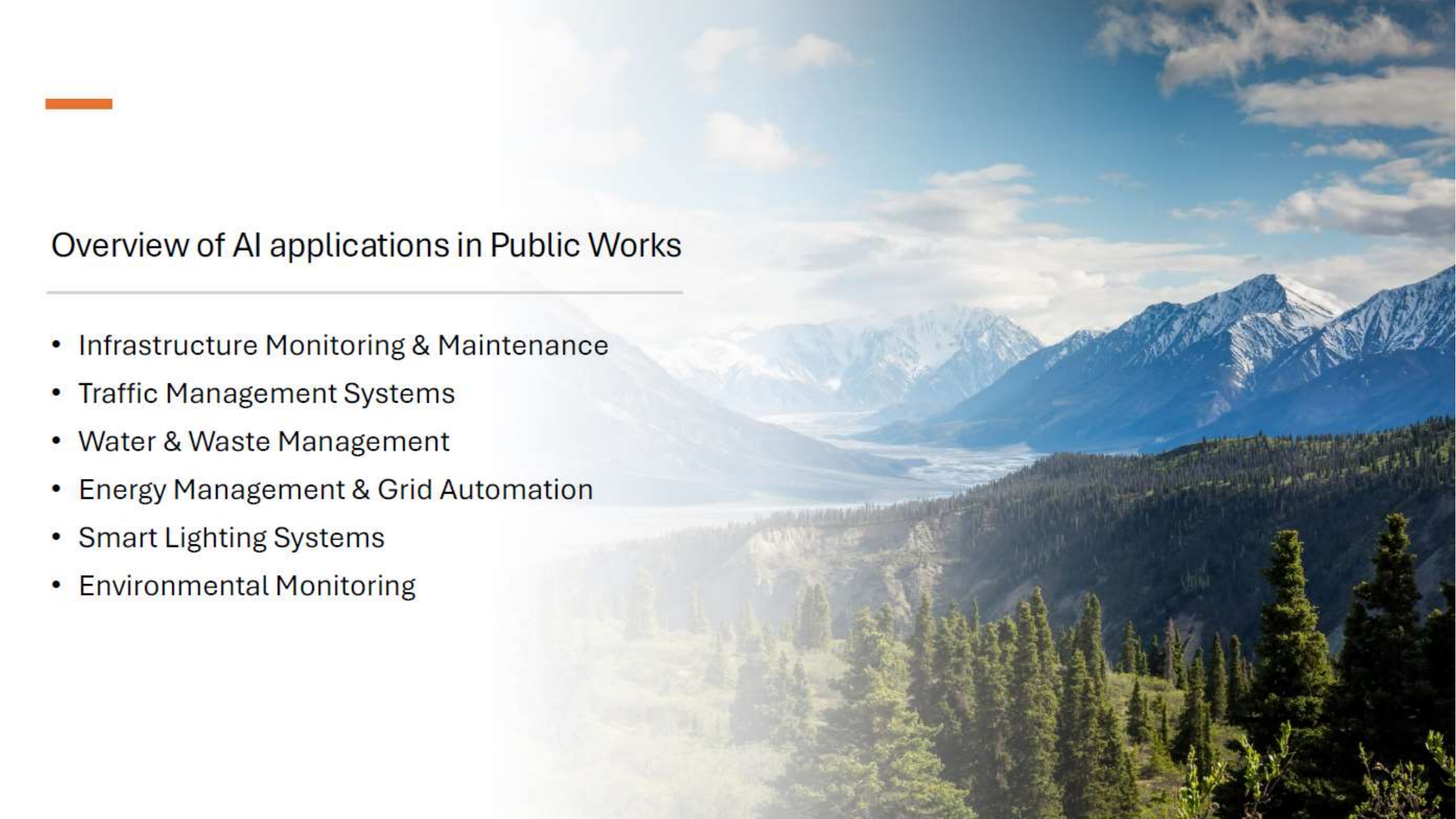
- Gruntify Emergency Management Software
- RapidSOS Harmony
- IBM Watson for Emergency Management
- One Concern
- Dataminr

AI in Public Works

Building Smarter Infrastructure with Innovative Technologies

Overview of AI applications in Public Works

- Infrastructure Monitoring & Maintenance
- Traffic Management Systems
- Water & Waste Management
- Energy Management & Grid Automation
- Smart Lighting Systems
- Environmental Monitoring



Benefits of AI in Public Works

- Operational Efficiency
- Resource Optimization
- Enhanced Decision-Making
- Improved Public Safety
- Sustainable Initiatives
- Community Engagement and Response

AI Products for Public Works

- V7 Labs AI Solutions
- IBM Watson for Government
- Microsoft Azure AI for Government
- SeeClickFix
- C3 AI Applications for State & Local Government
- Snowflake’s Government & Education Data Cloud

Conclusion

- **Key Points**
  - AI Enhances Efficiency – Across all Emergency Service Sectors
  - Improves Response & Outcomes
  - Challenges Remain
  - Ethical Considerations Are Crucial
  - Continuous Training & Engagement
- **Future Outlook**
  - Broader Integration
  - Policy & Regulatory Developments
  - Collaborative Innovations
  - Empowering Smarter Cities

Questions & Answers

PLEASE USE THE Q&A FEATURE AT THE TOP OF YOUR SCREEN TO SHARE QUESTIONS

THANK YOU FOR ATTENDING!

We look forward to seeing you at a future session.

Please take our post-session survey!
Scan this QR Code to access the short survey on your phone

NEXT SESSION – REGISTER NOW

Scan with phone to access Eventbrite Registration Page

Session 4: Emerging Cybersecurity Threats
October 10th, 2024, at 0900 Pacific/1200 Eastern

Registration Page: http://bit.ly/4d1kiSh

Email requests, questions, or comments to: training@ghinternational.com