AI: More Friend than Foe

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1. Artificial Intelligence
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How we got to where we are today....

Mathematics  Statistics  Machine Learning  Neural Networks  Deep Learning  Generative AI  Next Gen of AI
...and where we are going in the future

Simulation  Prevention  Preparation  Detection  Engagement  Management
What is Artificial Intelligence?
AI
Science of designing computer systems to support and accelerate human decisions and actions.
AI

Computer Vision

Natural Language Processing

Machine Learning
Deep Learning
Generative AI “GenAI”

LLM

Synthetic Data
Digital Twins
Machine Learning

Systems learn from data, identify patterns, and make decisions with minimal human intervention.
Property Valuation

Counties are using Machine Learning (ML) to reassess every residential property in the community every night.
Investigations Management

Law enforcement agencies use Machine Learning (ML) to pinpoint offenders, identify criminal patterns and trends, and issue alerts about emerging threats.
Transportation

Cities are using Machine Learning (ML) to understand commutes and predict traffic in real time.
Natural Language Processing

Enables understanding, interaction and communication between humans and machines.
Natural Language Processing
Categorise
Identification elements risk categories

Contextualize
Probable, possible or unlikely events

Tense
Past present or future

Score
High probability risk assessment in a collapsing timeframe

"I intend to abuse a child tomorrow"
Contextualize
Possible
Category
Sexual Term
Category
Child Access
Tense
Future

"it would be hot to abuse a child"
Contextualize
Unlikely
Category
Sexual Term
Category
Child Access
Child Exploitation

Law enforcement agencies are using Natural Language Processing (NLP) to investigate crimes.
Computer Vision

Enables systems to see, identify and process images or videos in the same way that human vision does.
How Computer Vision Interprets Images
Digitization of Paper

Governments use Computer Vision (CV) with Machine Learning and Text Analytics to quickly pinpoint and extract information from paper files.
Maintenance Oversight of Equipment

Utilities are using Computer Vision (CV) to monitor equipment.
Deep Learning

A type of machine learning used in recognizing speech, identifying objects in images, generating new content, and more. Comprised of three or more neural networks.
What is GenAI?
GenAI

An AI method that learns from real-world data to generate new content, such as text, images, audio, code, videos, and tabular data.
Large Language Models

Synthetic Data

Digital Twins
Large Language Models (LLMs)

Deep learning algorithms that recognize, summarize, translate, predict, and generate content
Public Commentary/Regulations

Government agencies are using Natural Language Processing (NLP) with Large Language Models (LLMs) to glean insights from copious amounts of public commentary on regulations.
Specialized Copilot

Large Language Models (LLMs) will help governments mine their own data and receive guidance on furthering their investigations or research.
Synthetic Data

Artificial data that’s manufactured.
Cyber Security

Organizations are using synthetic data and digital twins to simulate system environments in order to identify points of entry and to trick hackers.
Digital Twins

A virtual model designed to accurately reflect a physical object, system, or environment.
Policy Making

Governments are ascertaining the ‘winners’ and ‘losers’ of potential tax changes before regulations are implemented with the use of digital twins.
Flood Prediction

Governments are using digital twins to predict floods, enabling them to anticipate needs and allocate resources.
Gauging the Impact of Generative AI on Government
Survey by FedScoop

Top Types of Generative AI Solutions that Organizations Are Assessing:

- Business Operations and Workflows: 90%
- Mission Intelligence and Execution: 83%
- Citizen Services and Accessibility: 87%
- IT Development/ Cybersecurity: 86%
- Data Analytics and Insights: 91%
- Case Management and Workflow: 82%
- Oversight Planning: 83%
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Primary Benefits

- **Technical Support**: 65% of respondents
- **Ability to reduce the time required to complete work processes**: 64% of respondents
Why now?

Compute Power

Data

Analytic Models
What are Humans and Machines **good at?**

**HUMANS**
- Common Sense
- Intuition
- Creativity
- Empathy
- Versatility

**MACHINES**
- Large Data Sets
- Complex Calculations
- Learning
- Automation
When are humans and machines better together?

- Making sense of patterns and trends surfaced from large data sets
- Interpreting results from complex calculations
- Assessing impacts of simulated scenarios
- Handling exceptional cases apart from those that can be automated
Trustworthy AI

Developing and using AI technologies in an ethical manner

Ensuring AI does not harm people

Asking not just, “Could we?”, but also “Should we?”

Building AI that reflects our values as a society

Remembering the people impacted by each decision
Learn more about AI in the public Sector

Learn more about Generative AI at SAS
Thank you.

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