Opening Remarks & Welcome

Welcome to the NATO Science for Peace and Security Advanced Study Institute (ASI)

Advanced Study Institute: Artificial Intelligence for Disaster Management
Orlando, November 17 – 25, 2025

NATO OTAN
This activity is supported by: The NATO Science for Peace and Security Programme

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Welcome to the NATO Science for Peace and Security Advanced Study Institute (ASI)

Event Title: Artificial Intelligence for Disaster Management: Building Damage Identification and Flood Event Detection Using Deep Learning
Grant Reference: SPS.ASI.G8054
Dates: November 17-25, 2025 | Orlando, Florida

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Distinguished Professor
Saeid Nahavandi

UCF
UNIVERSITY OF CENTRAL FLORIDA

Dr. Bulent Soykan
Dr. Ghaith Rabadi
Dr. Soheil Sabri

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The NATO Science for Peace and Security Programme

Key Mission Statement: "To enhance **cooperation and dialogue** between NATO and its Partner nations through **civil science and innovation**, addressing shared **security challenges**."

Key Pillars:

- Fostering Scientific Collaboration
- Addressing Emerging Security Challenges
- Building Global Networks

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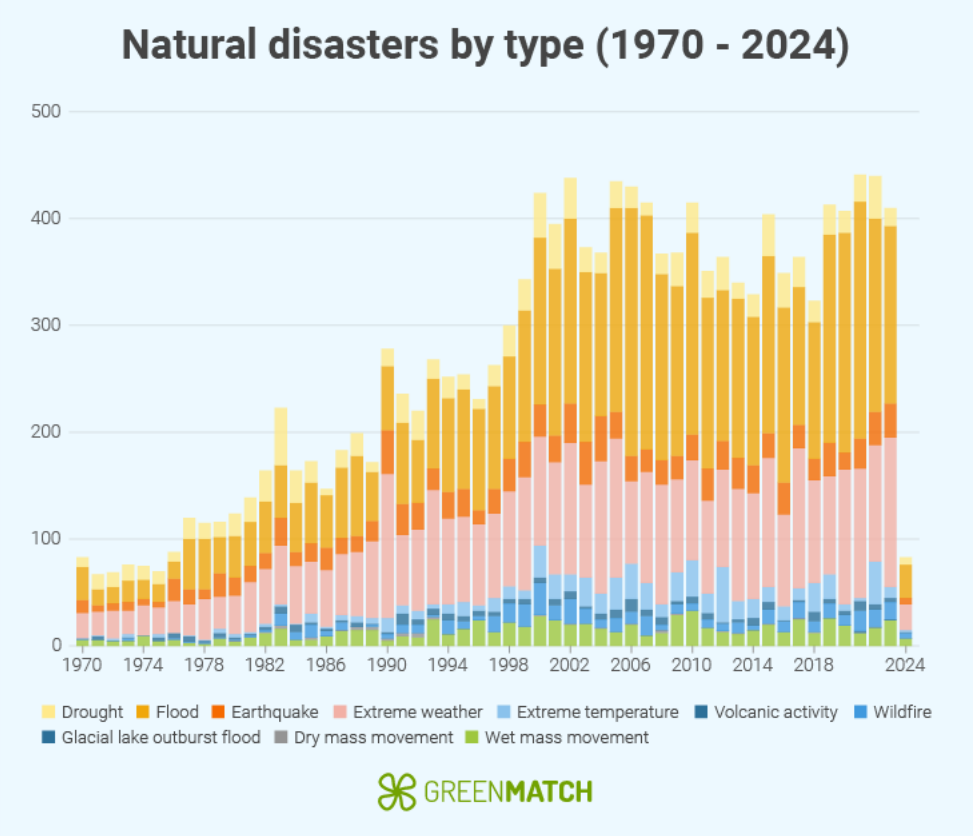
Artificial Intelligence in Disaster Management

- Frequency and intensity of natural hazards are increasing



Source: https://www.greenmatch.co.uk/blog/are-natural-disasters-increasing

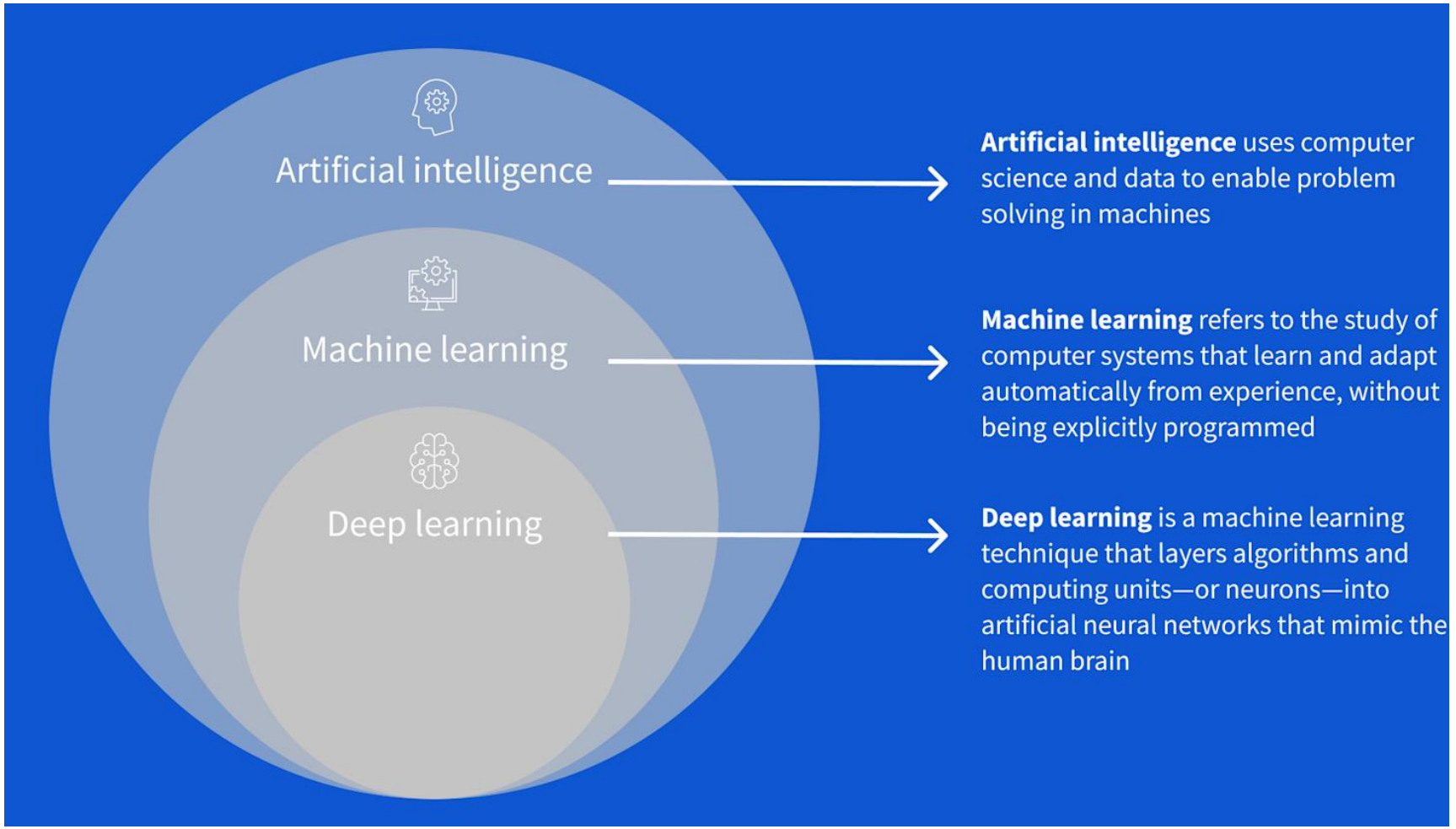
Artificial Intelligence in Disaster Management

- Traditional disaster management methods, while essential, struggle to scale with the volume, velocity, and variety of data (social media, satellite imagery, and IoT sensor readings)
- AI is not a panacea but a critical augmentation tool to enhance, not replace, human judgment and community engagement

The Disaster Lifecycle

Mitigation & Preparedness	Response	Recovery
Forecasting, risk assessment, and predictive modeling	Real-time situational awareness, rapid damage assessments from imagery , resource allocation	Aid distribution, monitoring for fraud and abuse, assessing the progress of reconstruction

Artificial Intelligence



Goals of This Advanced Study Institute

Knowledge Transfer

To provide a curriculum on the state-of-the-art in AI and DL for disaster management

Practical Application

To move beyond theory with hands-on training, enabling you to apply these advanced techniques to real-world problems

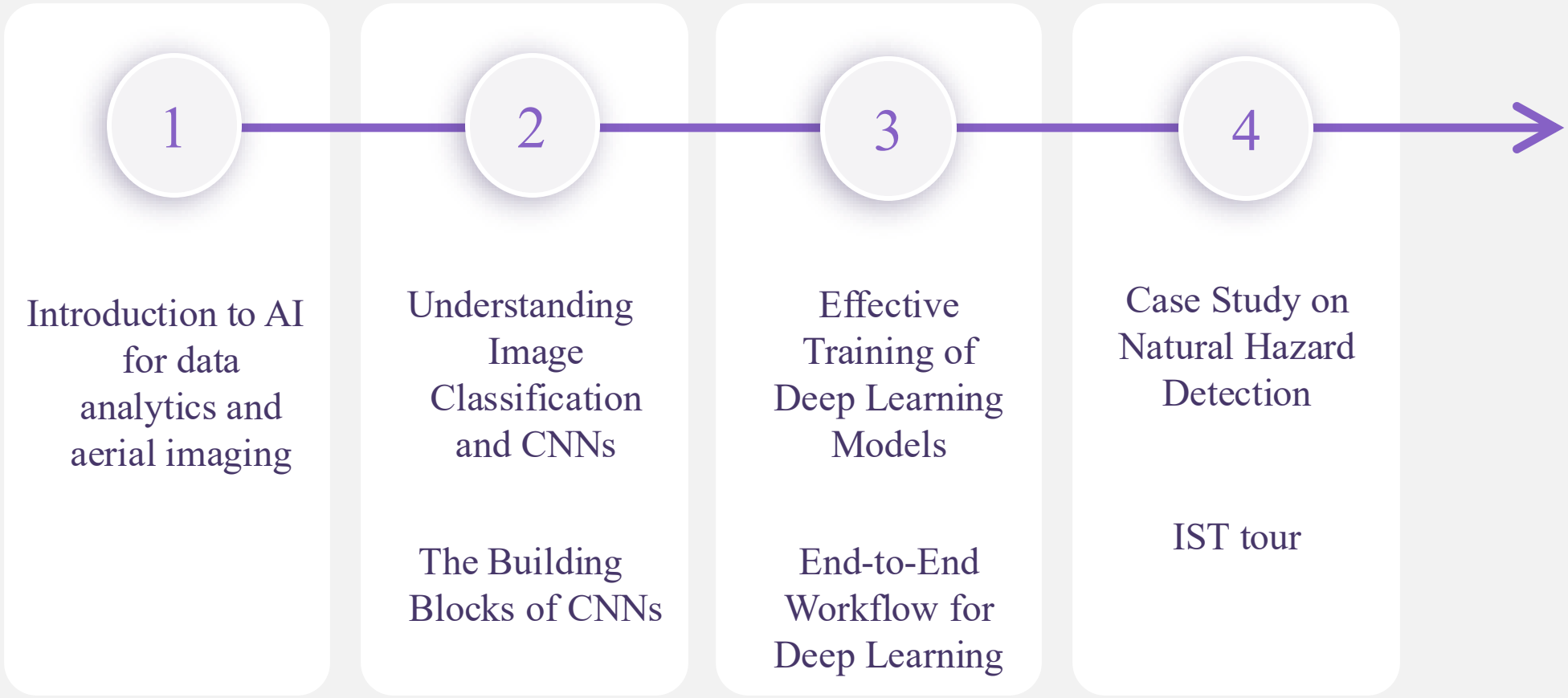
Collaboration & Networking

To build a lasting, international network of next-generation researchers and practitioners in this critical field

Addressing a Critical Challenge

To generate new insights and strategies for identifying building damage and flood events, ultimately saving lives and improving resilience

Event Agenda & Learning Path



Detailed daily schedule, please refer to the event website: https://sites.google.com/view/nato-sps-ai4dm

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Event Agenda & Learning Path

5	6	7
Machine Learning Workflows for Disaster Management Solutions	Applying Transfer Learning for Cost-Efficiency	Designing a Deployment Strategy
Introduction to Automated Building Damage and Flood Event Detection	Deploying a Model for Flood Detection	Event Wrap-up and Summary of Key Takeaways
11/21	**11/24**	**11/25**

Detailed daily schedule, please refer to the event website: https://sites.google.com/view/nato-sps-ai4dm

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Event Agenda & Learning Path

Hosted Dinner	**11/18 6pm The Celeste Hotel**
The Institute for Simulation and Training (IST) Tour	**11/20 10am-12am**
Certificate Ceremony and Final Networking	**11/25 3pm**

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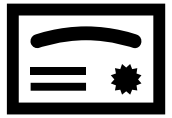
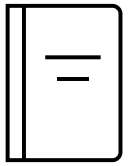
Beyond This 7 Days: Outcomes & Impact

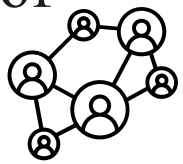
A cohort of highly skilled experts ready to advance the field



A peer-reviewed publication in the NATO SPS Series



A vibrant and active international community of collaborators



New, actionable ideas to apply in your own research and work

"The best way to predict the future is to create it."
- Peter Drucker

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Beyond This 7 Days: Outcomes & Impact

A peer-reviewed publication in the NATO SPS Series

- The publication will be Open Access with a fixed fee of €3,500 (covered by the NATO SPS funding)
- There will be no print edition
- The manuscript will be between 100-350 pages
- The deadline for submitting the final camera-ready manuscript is 9 months after our event (approximately August 2026)

Instructors

- Distinguished Professor Saeid Nahavandi https://experts.swinburne.edu.au/9971-saeid-nahavandi
- Dr. Parham Kebria. https://parhamkebria.com/
- Ahmad Bany Abdelnabi https://ahmadabdelnabi.github.io/
- Dr. Soheil Sabri https://www.ist.ucf.edu/faculty/soheil-sabri-ph-d/
- Professor Ghaith Rabadi https://ghaithrabadi.com/
- Dr. Bulent Soykan https://www.bulentsoykan.com/

Guest Lectures

Prof. Nezih Altay

11/20 1pm

Challenges and Opportunities for AI Adoption in HL

Professor and **Director**, MS in Supply Chain Management Program
DePaul University, Chicago, IL

He currently serves as the co-editor-in-chief of **the Journal of Humanitarian Logistics & Supply Chain Management**, and senior editor of **Production and Operations Management**

https://business.depaul.edu/faculty/faculty-a-z/Pages/nezih-altay.aspx

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Guest Lectures

11/20 1pm

Prof. Ali Mostafavi

Professor, Civil & Environmental Engineering
Texas A&M University, College Station, TX

He is a member of the ASCE Infrastructure Resilience Division and an Editorial Board member of the ASCE Management in Engineering Journal

Urban Resilience.AI Lab (https://www.urbanresilience.ai/)

https://engineering.tamu.edu/civil/profiles/mostafavi-ali.html

Guest Lectures

11/24 3pm

Associate Prof.
Yue “Gurt” Ge

Associate Professor, School of Public Administration
University of Central Florida, Orlando, FL

He is a Faculty Co-lead of the Urban Resilience Initiative (URI), and Joint Faculty in the Center for Resilient, Intelligent and Sustainable Energy Systems (RISES)

https://ccie.ucf.edu/person/yue-ge/

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Guest Lectures

Professor
Chaopeng Shen

11/25 9am

Differentiable high-resolution hydrologic and water quality simulations transform global hydrologic research

Professor, Civil and Environmental Engineering
Pennsylvania State University, University Park, PA

He currently serves as the editor of the Journal of Geophysical Research - Machine Learning & Computation (AGU)

https://water.engr.psu.edu/shen/

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Guest Lectures

Professor
Abbas Rajabifard

11/25 2pm

Professor, Department of Infrastructure Engineering
The University of Melbourne, Australia

He is an International Advisory Board member of United Nations Academic Network on Global Geospatial Information Managment -GGIM, and an International Advisory Member of UN Global Geospatial Knowledge and Innovation Center (UN-GGKIC)

https://findanexpert.unimelb.edu.au/profile/6142-abbas-rajabifard

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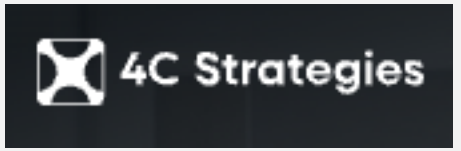
Industry Talks

https://www.seer.ai/

11/21 11am



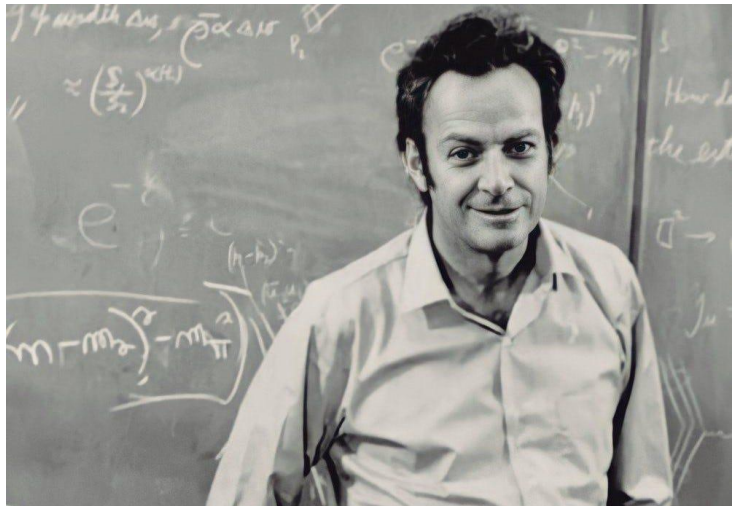
https://www.4cstrategies.com/na/

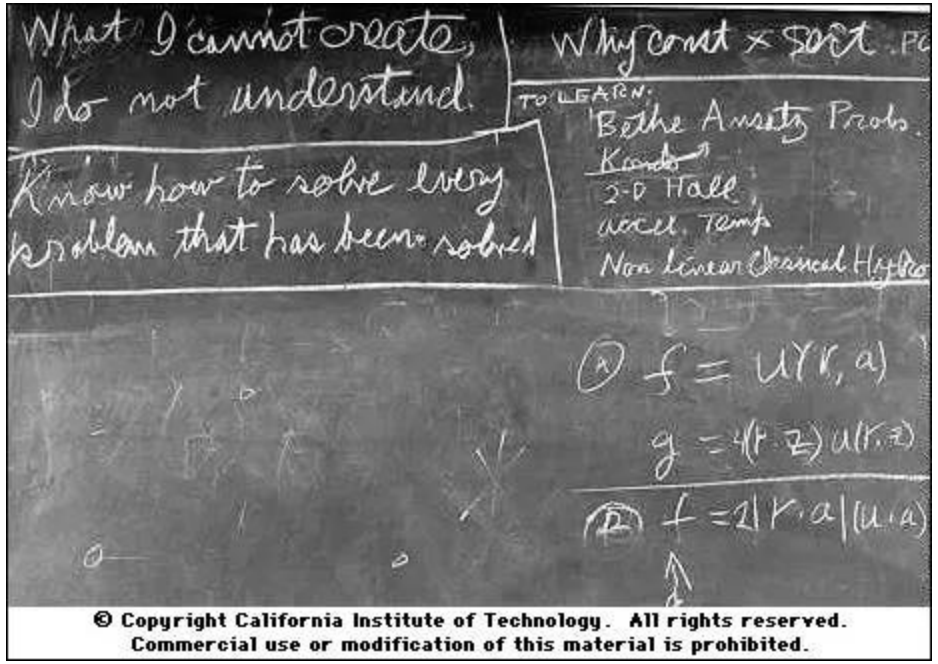
11/21 3pm

Our Philosophy

"What I cannot create, I do not understand"
"Know how to solve every problem that has been solved."

Richard Feynman





Rules of Engagement

Be Curious
Ask questions. No question is too basic.

Be Collaborative
Share your own work and experiences during breaks and Q&A sessions.

Be Critical
Challenge the speakers.
Challenge each other.
Constructive debate is how science advances.

Be Present
Minimize distractions.
Immerse yourselves in the material and the community.

Participation

Lectures

+

Hands-on and Case Study

+

Your work

Thank you for your attention!

Q&A