UNU INWEH | UNU Hub
Remote-Sensing & Sustainable Innovations for Resilient Urban Systems (R-SIRUS)
The City College of New York

United Nations University Hub R-SIRUS
Professional Development Workshop in

Digital Earth and Artificial Intelligence for Sustainability

Agenda

Day 1: Monday, January 12, 2026

Foundations: EO Systems, Physics, Calibration

Moderator: Mitch Goldberg

Time	Session	Speaker(s)
8:45 AM - 9:00 AM	Welcome Remarks	Mitch Goldberg Reza Khanbilvardi
9:00 AM - 10:00 AM	Guest Keynote: Global Satellite Observing System for Applications	Ken Holmlund
10:05 AM - 11:35 AM	Microwave Remote Sensing: Theory and Applications	Christian Kummerow
11:40 PM - 12:30 PM	Lunch	
12:30 AM - 14:00 PM	VNIR/IR Imagery Applications: Clouds, Aerosols, Vegetation, LST	Steve Platnick
14:00 PM - 15:30 PM	Infrared Remote Sensing: Theory and Applications	Allen Huang
15:35 PM - 17:05 PM	Instrument Calibration & Uncertainty	Jack Xiong
17:05 PM - 17:30 PM	First Day Wrap-up	Mitch Goldberg

Day 2: Tuesday, January 13, 2026

Sensors, Products, and Mission Perspectives

Moderator: Mitch Goldberg

Time	Session	Speaker(s)
9:00 AM - 10:00 AM	Guest Keynote: New Generation of Satellite Observations from Europe	Bojan Bojkov
10:05 AM - 11:05 AM	Geostationary Imagery for Real-Time Environmental Surveillance	Dan Lindsey
11:10 AM - 12:40 PM	Ocean Color: Theory, Coastal Challenges, Validation	Maria Tzortziou/Alex Gilerson
12:40 PM - 13:30 PM	Lunch	
13:40 PM - 15:10 PM	SAR & Urban Change: Flooding, Subsidence, Infrastructure	Kyle McDonald
15:15 PM - 16:15 PM	Air Quality from Space: Products to Decisions	Shobha Kondragunta
16:20 PM - 16:50 PM	Second Day Wrap-up	Mitch Goldberg
17:00 PM – 18:00 PM	Networking Reception (Steinman Hall)	

Day 3: Wednesday, January 14, 2026

Deep Learning Fundamentals and Applications (Day 1)

Time	Session	Speaker(s)
9:00 AM - 10:00 AM	Guest Kickoff: Data Assimilation and Machine Learning (ML)-Ready Satellite Data	Tony McNally
10:10 AM - 12:10 PM	DL Fundamentals of Deep Learning: From Biological to Artificial Neurons, Logical Computations with Neurons, the	Hernan Morena and Laura Alvarez

	Perceptron, the Multilayer Perceptron and Backpropagation	
12:10 PM - 13:10 PM	Lunch	
13:15 PM - 13:35 PM	Exercise: Understanding and computing an MLP	Hernan Morena and Laura Alvarez
13:35 PM - 15:00 PM	Clinic: Set up Google Collaboratory for Laboratory Exercises	
15:00 PM - 17:00 PM	Regression and Classification MLP. Implementing MLP with Keras, Building an Image Classifier and a Regression MLP using the Sequential API.	
17:00 PM - 18:00 PM	ML Clinic: Discussion & Roundtable with Instructors.	

Day 4: Thursday, January 15, 2026

Deep Learning Fundamentals and Applications to Image Analysis and Regression Problems (Day 2)

Time	Session	Speaker(s)
9:00 AM - 10:00 AM	Clinic: A neural network playground: The Effects of Architecture and Hyperparameters on the Performance of a Neural Network.	Hernan Morena and Laura Alvarez
10:00 AM - 10:15 AM	Break	
10:10 AM - 12:10 PM	Building complex models using the functional API. Saving and Restoring a Model.	
12:10 PM - 13:10 PM	Lunch	
13:10 PM - 15:10 PM	Using callbacks, Using TensorBoard for visualization. Fine-Tuning Neural Network Hyperparameters; Number of Hidden Layers, Number of Neurons per	Hernan Morena and Laura Alvarez

	Hidden Layer, Learning Rate, Batch Size, Others.	
15:10 PM - 15:20 PM	Break	
15:20 PM - 17:00 PM	Introduction to the Final Capstone Challenge: Forecasting Hourly River Flows Using Artificial Neural Networks.	
17:00 PM - 18:00 PM	Clinic: Roundtable Discussion/Questions/Applications.	

Day 5: Friday, January 16, 2026

Open Science, Capstones, and Closing (Half-Day)

Time	Session	Speaker(s)
9:00 AM - 11:15 AM	Clinic: Advancing Your Capstones and Preparing Your Final Report	Hernan Morena and Laura Alvarez
11:15 AM - 11:30 AM	Break	
11:30 AM - 13:30 PM	Capstone Mini-Presentations (Problem, Data, Method, Metrics, Decision Link)	
13:30 PM - 2:00 PM	Certificates, Next-Step Pathways, and Closing Remarks.	