

Schedule for the “Machine Learning for Earth Observation and Data Fusion” BIP on-line segment

- UNIPV: Introduction to Machine and deep learning for EO, 2 lectures (4 hours) and 2 practicals (6 hours)
- INGP: Deep Learning for hyperspectral data, 1 lecture (2 hours) and 2 practicals (6 hours)
- TUB: Deep Learning for multilabel classification: 1 lecture (2 hours) and 2 practicals (6 hours)
- UNIS: Deep Learning algorithm implementation on parallel and GPU machines: 1 lecture (2 hours) and 3 practicals (9 hours)

Lectures are in the 5-7 PM CET time slot, practicals in the 5-8 PM CET time slot

“Introduction to Machine and Deep Learning for EO” (10 hours)

Date	Topic	Speaker
11/03	Machine Learning for Earth Observation and Data Fusion	P. Gamba
13/03	Deep Learning for Earth Observation and Data Fusion	P. Gamba
18/03	Lab-1: 2D and 3D urban characterization from VHR SAR data	L. Russo
20/03	Lab-2: Water body extent and volume extraction from SAR and optical data	L. Russo

“Deep Learning for hyperspectral data” (8 hours)

Date	Topic	Speaker
27/03	Introduction to hyperspectral data	J. Chanussot
03/04	Lab-3: Spectral unmixing	J. Chanussot
10/04	Lab-4: Classification	J. Chanussot

“Deep Learning for multilabel classifications” (8 hours)

Date	Topic	Speaker
28/04	Learning-based Scene Classification for Earth Observation	B. Demir
29/04	Lab-5: CNNs for Scene Classification	J. Klotz
30/04	Lab-6: Self-Supervised Learning for Scene Classification	M. Arend

“Large-Scale Deep Learning with HPC for EO ” (11 hours)

Date	Topic	Speaker
14/05	Introduction to High-Performance Computing (HPC) for Large-Scale EO Applications	G. Cavallaro
15/05	Lab-7: Setting Up Interactive HPC Environments with Jupyter-JSC	S. Maurogiovanni
21/05	Lab-8: Distributed Deep Learning on GPU-Based Clusters	S. Maurogiovanni
22/05	Lab-9: Fine-Tuning Large-Scale Geospatial Foundation Models with Your Own EO Data	S. Maurogiovanni