U-NET FOR IMAGE ANALYSIS

OBJECTIVE:
Gain an in-depth understanding of the U-Net architecture and learn how to apply it to key image processing tasks. A course combining theory and real-life case studies to enhance your skills in applied deep learning.

AUDIENCE: This training course is open to all PEPR DIADEM staff:
- Doctoral or post-doctoral students
- Teachers-research
- Researchers / research engineers

PREREQUISITES:
- Good level of English required
- Personal laptop essential

PROGRAM:

Wednesday 29/10 afternoon: (optional)
Visit to Diadem's target projects: DIAMS, ATHERM_COAT and DIAMOND. Discussion with digital engineers.

Thursday 30/10:

Theory: (½ day)
Review of network anatomy, learning strategies and recent extensions that integrate U-Net into automated imaging pipelines.

Practical: (½ day)
Study of real cases from X-ray microcopy and visible light fluorescence microscopy of biological cells:
- ❖ Pixel-accurate segmentation
- ❖ Image denoising
- ❖ Integration of techniques into automated workflows

TRAINEUR:

Dmitry KARPOV: Assistant Professor of Physics and Materials Science at Grenoble Alpes University.
(Materials Modelling and Exploration Laboratory).

SESSION:
UGA - SIMAP : 29 - 30 october 2025
(St Martin d'Hères – 38)

DURATION:
½ day visit (optional)
+ 1 day of learning (7h)

MODALITY:
Face-to-face

MEALS (paid for):
Ice-breaker dinner on 29/10 (optional)
Plate lunch on 30/10

TARIFF:
This training course is fully funded by the PEPR DIADEM

Information and registration:
Places are limited (10 max)

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