FRANCE 2030 PROGRAMME DE RECHERCHE MATÉRIAUX ÉMERGENTS

DIADEM Academy

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 intended for:

- Doctoral or post-doctoral students
- Teachers-research
- Researchers / research engineers

PREREQUISITES:

- Good level of English required
- Personal laptop essential

PROGRAM:

Thursday 19/02 morning: (optional)
Visit to the **ESRF** (European Synchrotron Radiation Facility) in Grenoble.

Thursday 19/02 afternoon: *Theory (½ day)*
Review of network anatomy, learning strategies and recent extensions that integrate U-Net into automated imaging pipelines.

Friday 20/02: *Practical : (1 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

Presentation of the **DIAMOND** project

TRAINEUR :

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

SESSION:
ESRF / UGA - SIMAP : 19 - 20 february 2026
(Grenoble / St Martin d'Hères – 38)

DURATION:
½ day visit (optional)
+ 1 day ½ of learning (10h)

MODALITY:
Face-to-face

MEALS (payd for):
Ice-breaker dinner on 19/02 (optional)
Lunch on 20 February

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

Information and registration:
Places are limited (10 max)

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