



Urban Flood detection from Sentinel-1 by U-Net convolutional network approach

Welcome to ICube,

Created in 2013, the laboratory brings together researchers from the [University of Strasbourg](#), the [CNRS](#) (French National Center for Scientific Research), the [ENGEES](#) and [INSA](#) of Strasbourg in the fields of engineering and computer science, with imaging as the unifying theme.

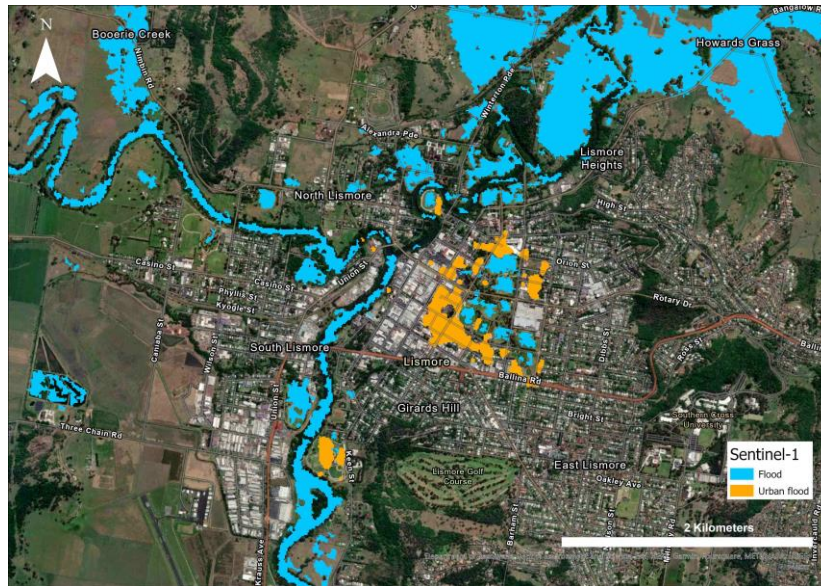
With around 650 members, [ICube](#) is a major driving force for research in Strasbourg whose main areas of application are biomedical engineering and sustainable development.

[SERTIT](#), a service platform of ICube, known for its ISO certified rapid mapping service, is seeking to accelerate its automatic mapping activities. This service assists in post-crisis emergency management.

Organized horizontally, SERTIT operates with a people centric approach, which fosters a friendly community and culture. Join us to be part of our mission to put satellite imagery in service of those in need.

Mission

- Collaborate with the SERTIT team to propose and code a refinement to the existing urban flood extraction chain from Sentinel-1 by U-Net convolutional network approach:
 - Tuning the U-Net convolutional network settings and chain,
 - SAR signal optimisation,
 - Processing chain optimizations,
 - ...
- Extract and implement urban flood by exploiting all available historical data (from Sentinel-1).
- Analyze, compare and validate models.



Role

- Analyze the workflow implemented in the SERTIT urban flood detection chain (called FLORIA).
- Optimize the U-Net convolutional-network chain.
- Validate the chain over selected areas.

Skills

Must have:

- Knowledge in convolutional neural networks
- Knowledge in SAR remote sensing
- Experience in GIS, spatial analysis with QGIS and/or ArcGIS
- Experience in software development and scripting (Python/Gitlab)
- Have excellent communication skills and a strong team player
- Good knowledge of English, French is not mandatory
- Can-do attitude!

Nice to have or interested in learning:

- Knowledge of U-net methods
- Knowledge of Sentinel-1 products

Profile

- Undergraduate student of a remote sensing/IA degree or similar

Benefit

- Salary: 550 € / month

Some press about us:

["Presentation of the ICube laboratory"](#) (Youtube video)

[Who is SERTIT ?](#) (Youtube video)

Join Us:

To apply, send us an email to dev-sertit@unistra.fr, be sure to include your C.V. and a cover letter to let us know why you think you would be a good fit.

DURATION and STARTING DATE: 6 months starting at spring/summer 2023

LOCATION: Strasbourg, France