



Change detection in earth observation time series data using deep neural auto encoder networks

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

Investigate application of deep learning to time series data in remote sensing:

- Work within an earth observation service specialized in remote sensing
- Participate in a research and development team
- Implement neural networks for time series earth observation data
- Investigate neural networks applications to change / anomaly detection in land use change

Role

- Implement deep recurrent neural networks auto-encoders
- Research change and anomaly detection in time series data
- Investigate applications to forest cuts, bark beetle infestation, water bodies evolution
- Explore enhancements to recurrent neural networks with convolutional layers
- Participate in a research and development team

Skills

Must have:

- Experience in programming in Python and the Python scientific computing frameworks (pandas, numpy, scikit-learn, scikit-image)
- Fluency with the basics of Machine Learning workflows and techniques (e.g. best practices around training data management, understand basics of numerical optimization)
- Familiarity with Linux and other Unix environments
- 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:

- Experience with GIS software and packages like ArcGIS, QGIS, GDAL or PostGIS
- Experience with a deep learning framework (Tensorflow, PyTorch, Caffe, Theano, Keras)

Profile

- In the penultimate year of studying a degree in a subject that involves computer science, technology, geospatial, geomatic or data analytics
- Right to work in France without requiring sponsorship

Benefit

- Salary: ~590 € / 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 parusinski@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.

STARTING DATE: Spring/Summer 2021

LOCATION: Strasbourg, France