



VNIVERSITAT
ID VALÈNCIA



Shared postdoctoral position between University of Valencia (Spain) and University of Oxford (UK)

We offer a postdoctoral research fellow position to work on Multi-Image Super-Resolution and Explainable AI with Sentinel-2 satellite images in a European Space Agency (ESA) collaborative project between our two research groups.

The Project

ESA – OpenSR – Towards Explainable AI: Application to Trustworthy Super-Resolution

The OpenSR project aims to bring robust, accountable, and scalable multi-spectral super-resolution techniques to the Earth Observation (EO) community for the ubiquitous L2 and L3 pre-processing of the Sentinel-2 (S2) revisits archive. Super-resolution (SR) is a nascent technology and the roadmap to maturity will require insights from many disciplines. Super-resolution is not just about image generation, but also degradation: how much information is lost in pixelation. To shift the public perception on the safety of SR-S2 products, we will provide uncertainty and quality metrics along with the new SR products; establish and disseminate best practices through our new methods and tools that will be open to everyone.

Your Profile

1. Experience in machine learning, deep learning, image processing, and statistics
2. We love interdisciplinarity! Interested in remote sensing, Earth sciences, and computer vision
3. Experienced in scientific interpretation and analysis of data
4. Experienced with or convincing motivation to enter a leadership position
5. Strong programming skills in Python
6. Proven record of scientific publications
7. PhD in maths, physics, or computer science
8. Critical and organized sense for data analysis
9. Strong communication, presentation and writing skills are a big plus
10. Maturity and commitment
11. Collaborative team player

Your tasks

- Lead research along the project specific topics
- This will not be a solo research project, like typical postdoc or PhD projects, but more in line with a collaborative effort occurring in an industrial setting. This is an opportunity to hone team skills while collaborating with a team of researchers (another research fellow and the principal investigators)
- Publish in international peer-reviewed journals and conference venues

Why to apply? (context and offer)

The successful candidate will be based in the University of Valencia, Valencia, Spain, and will be supervised by both Dr. Freddie Kalaitzis, at the University of Oxford, and Dr. Luis Gómez Chova, at the University of Valencia. This will imply frequent teleconfs, possibility of part-time job and teleworking, and eventual stages at the University of Oxford.

- Estimated starting date: July or September 2022.
- Contract period: 2 years (with extension opportunities)

Freddie Kalaitzis is the coordinator of the OpenSR project at the University of Oxford. He will lead the team at the Oxford Applied and Theoretical Machine Learning (OATML) group, led by Yarin Gal, Associate Professor of Machine Learning at the Computer Science department, University of Oxford. The OATML group has contributed substantially to work in modern Bayesian deep learning—quantifying uncertainty in deep learning—and developed ML/AI tools that can inform their users when the tools are “guessing at random”. These tools have been deployed widely in industry and academia, with the tools used in medical applications, robotics, computer vision, astronomy, in the sciences, and by NASA. The arching theme leading its research is Pragmatic Approaches to Fundamental Research. This includes making use of principled approaches to develop new, practical, ML tools, and studying theoretical questions uncovered by real-world applications of ML.

Luis Gómez-Chova is the principal investigator of the project at the University of Valencia in the Image and Signal Processing (ISP) group, led by Gustau Camps-Valls. The group is devoted to the development of machine learning and signal processing techniques for remote sensing image processing, Earth observation data analysis. Several topics are treated in our research group and projects: regression, physics-aware machine learning, generative modeling, eXplainable AI and feature ranking, anomaly detection, causality & information theory, and Earth observation data analysis.

The ISP group is the place to be:

1. Truly interdisciplinary projects: machine learning + climate/geo sciences + neuroscience
2. Work in cutting-edge machine learning to tackle relevant, challenging environmental problems
3. Postdocs may supervise outstanding students and lecture at master level is possible, yet not mandatory
4. Access to high performance computing facilities and clusters
5. Part-time job and teleworking are generally acceptable
6. Flexibility to work on side projects with international organizations
7. We care about diversity and the gender issue!
8. Active group, engaged in AI networks like ELLIS, i-AIDA and ESA PhiLab
9. Very friendly, interactive and international working environment
10. Salary according to UV scales + health insurance + travel money
11. Valencia city has an excellent cost-of-living index = 55 (and weather and food)

Application

- Apply filling the form [here](#)
- Deadline: continuous evaluation of CVs until May/June 2022!
- Enquiries [here](#) (Luis Gómez Chova & Freddie Kalaitzis)
- Interviews could be scheduled after April 2022.
- We look forward to receiving your application!