



2018-IPR-D-000-010385

**Machine learning to derive crop phenology  
from geo-tagged street level imagery**

**Position for:**

Trainee

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <http://www.jrc.ec.europa.eu>

**Short description of activity:**

The Food Security Unit contributes scientific expertise towards a more effective and efficient management of EU policies related to agriculture and food security, including the Common Agriculture Policy (CAP).

The trainee position and research activities are related to both the GTCAP project and the H2020 funded project LandSense. The overall aim of the LandSense project is to build an innovative citizen observatory in the field of Land Use and Land Use Change, which collects data both actively (through citizens) and passively (from authoritative, open access, and other citizen-based initiatives).

The trainee will contribute to the agricultural component of the project and in particular on evaluating the capacity of machine learning techniques to derive crop phenology from targetted and crowd-sourced geo-tagged and time-stamped imagery. The validated information derived from machine learning is valuable as input to parameter extraction and calibration of time-series derived from the high resolution Copernicus Sentinel suite of satellites. The latter is particularly relevant in support of new methods underpinning CAP monitoring approaches which are developed in the GTCAP project.

By accomplishing concrete and divers tasks in an innovative context, the trainee will develop

	<p>skills and expertise in fields including image processing and machine learning, remote sensing GIS and agronomy. In particular, the trainee will contribute to the valuation of a digital dataset of crowd-sourced street-level imagery representative for the major crops in Europe, which can be used to train relevant machine learning models for automatic recognition of crop types and crop development stages. Moreover, support will be given to help the trainee to write the findings up in a scientific paper.</p> <p><b><u>Qualifications:</u></b></p> <p><b><u>Essential:</u></b></p> <ul style="list-style-type: none"> <li>• BSc University degree in agronomy, data sciences, environmental sciences or related fields.</li> <li>• Basic remote sensing analysis, experience with machine learning modules and programming skills.</li> <li>• Good knowledge of spoken and written English (B2 level).</li> </ul> <p><b><u>Advantage:</u></b></p> <ul style="list-style-type: none"> <li>• Experience with crowd sourcing, citizen science, relevant open source components and open data and data analysis.</li> <li>• Field experience in agriculture (knowledge of agricultural practices, crop types and plant development stages).</li> </ul> <p><b><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></b></p> <p><a href="https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees">https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</a></p>
<b>Institute/Directorate Unit</b>	<p>Directorate D - Sustainable Resources, Food Security Unit GTCAP/FOODSEC</p> <p>Further information: <a href="https://ec.europa.eu/jrc/en/mars">https://ec.europa.eu/jrc/en/mars</a></p>
<b>Indicative duration</b>	5 months
<b>Preferred starting date</b>	As soon as possible

<b>JRC Site</b>	Ispra
<b>Country</b>	Italy
<b><u>JRC contact details</u></b>	<b>For any technical problems with your application, please contact:</b> <a href="mailto:JRC-ESRA@ec.europa.eu">JRC-ESRA@ec.europa.eu</a>