



2019-IPR-A5-FGIV-011517

**FGIV – Scientist - Exploratory Research Project
Generating massive in-situ crop data with
computer vision and crowd-sourced street-
level imagery (RURAL REFOCUS)**

Position for:

FG IV Scientist

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://ec.europa.eu/jrc/>

The JRC offers a vacancy for a Contract Agent within the Exploratory Research Project RURAL REFOCUS (Generating massive in-situ crop data with computer vision and crowd-sourced street-level imagery).

The JRC Exploratory Research Programme (ER) is a strategic initiative characterised by ideas that might lead to novel results to qualitatively enrich current JRC scientific work.

The ER Project RURAL REFOCUS aims to extract crop and agriculture relevant data from massive sets of crowdsourced street-level imagery by applying computer vision/machine-learning techniques. We will tap in the huge streams of images constantly uploaded on platforms such as Mapillary. To automatically recognize crop types and development stages on images and train deep neural networks, we take advantage of already labelled LUCAS images. Trained algorithms will be applied to millions of expert surveyed and crowd-sourced images. Imagine the amounts of in-situ data potentially created this way! Emphasis will be on recognizing crops and phenology, crop management practices, and landscape elements, directly relevant for our activities in estimating crop production and CAP monitoring. Ultimately, the resulting datasets should serve as parcel-level ground-truth for Copernicus Sentinel-1 and-2 based EO products.

The successful candidate will be in charge of carrying out all aspects of the Rural Refocus project, this includes:

- Collect, analyse, and geospatially process massive amounts of images;
- Design, implement and test computer vision and machine learning algorithms;
- Dissemination/publication of results.

Qualifications:

- Completed university studies of at least three years attested by a diploma and at least five years professional experience in a field relevant to the position, alternatively a doctoral diploma in applied computer science, image analysis, remote sensing, agricultural engineering, or related field;
- Extensive knowledge/experience in advanced image processing, big data analytics (using e.g. R), neural networks, programming skills (e.g. Python, C/C++) is essential;
- Broad knowledge in the area of agriculture/agronomy,

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| | <p>remote sensing, geographic information systems, precision farming, is essential;</p> <ul style="list-style-type: none"> • Knowledge of field surveying, using crowd-sourced data is an advantage; • Solid record of research activities relevant for the post including publications in international peer-reviewed journals is an advantage; • Good oral and written communication skills in English (B2) are essential, knowledge of other languages is an advantage. <p>In addition, the following competences will be considered as an advantage:</p> <ul style="list-style-type: none"> • Ability to work in a team and in a multi-cultural environment; • The candidate is expected to be creative and work independently; • Research experience or applications of machine learning or deep learning; • Open-source project experience that demonstrates programming, mathematical, and machine learning abilities and interests. |
| <p>Directorate Unit</p> <p>Project</p> | <p>Sustainable Resources Food Security</p> <p>The Scientific Development Unit of the Directorate for Strategy and Work Programme Coordination is in charge of the overall JRC Exploratory Research Programme.</p> <p>The operational scientific research will take place in the Food Security Unit in Ispra (Italy).</p> <p>Exploratory Research Project: Generating massive in-situ crop data with computer vision and crowd-sourced street-level imagery (RURAL REFOCUS).</p> <p>Further information is available at: https://ec.europa.eu/jrc/en/science-area/agriculture-and-food-security</p> |
| <p>Indicative Duration</p> | <p>24 months</p> |
| <p>JRC Site</p> <p>Country</p> | <p>Ispra</p> <p>Italy</p> |
| <p>Rules and eligibility</p> | <p>The candidate must be on any valid EPSO reserve list for Function Group IV contract staff.</p> <p>Applicants to the following Calls for expression of interest can also be considered:</p> <ol style="list-style-type: none"> 1. CAST Permanent - EPSO has launched in January 2017 an open-ended selection procedure to create a pool of candidates from which the institutions, bodies, offices and agencies of the European Union (EU) can recruit contract agents. Details available at the link below: https://epso.europa.eu/documents/2240_en 2. Call COM/1/2015/GFIV – Research - The JRC has launched in January 2015 a permanent call for researchers |

FG IV. Details available at the link below:
<https://ec.europa.eu/jrc/en/working-with-us/jobs/vacancies/function-group-IV-researchers>

Auxiliary contract staff:

<https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/contract-staff-members>

Article 3b of the Conditions of Employment of Other Servants of the European Union applies: the actual period of employment within the Commission under this type of contract, including any period under renewal, shall not exceed 6 years.

Please note that in case a high number of applications is received only shortlisted candidates will be contacted.