



2017-IPR-E-000-8966

**Improvement and formalization of image quantization for automatic classification of built-up areas with Sentinel-2 satellite data**

<p><b>Position for:</b></p> <p>Trainee</p>	<p>As the science and knowledge service of the Commission, the mission of Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.</p> <p>The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <a href="http://www.jrc.ec.europa.eu">http://www.jrc.ec.europa.eu</a></p> <p><b><u>Short description of activity:</u></b></p> <p>The successful candidate will carry out scientific and technical tasks in the Disaster Risk Management Unit, in particular he/she will contribute to the advancement of the Global Human Settlement Layer “built-up” product through the exploitation of Sentinel-2 earth observation data.</p> <p>The activity contributes to the GHSL Baseline data and indicators 2017 (GHSL2017) to support the implementation of the EU Urban Agenda and international frameworks for Disaster Risk Reduction, Sustainable Development Goals, Climate Change and the New Urban Agenda.</p> <p>In details, the jobholder will contribute to the design and implementation of a set of experiments aimed at improving the quantization module of the Symbolic Machine Learning classifier developed by the team.</p> <p>The following activities are planned:</p> <ul style="list-style-type: none"><li>• Setting-up the experiments;</li><li>• Implementing the tests in Matlab;</li><li>• Analysing the results,</li><li>• Comparing the results with those obtained with the current quantization approach,</li><li>• Formalization of image quantization rules,</li><li>• Reporting.</li></ul>
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	<p><b><u>Qualifications:</u></b></p> <p><b><u>Essential:</u></b></p> <ul style="list-style-type: none"> <li>• Academic background in statistics, spatial data analysis and Geographic Information Systems</li> <li>• Experience with data validation methods, exploratory data analysis</li> <li>• Excellent skills with respect to: communication; strong ability to search through data, analyse, and summarise critical information</li> <li>• Knowledge of the following is desired: MATLAB, R, ArcGIS and/or QGIS</li> <li>• Good command of English is essential for communication and reporting (level B2)</li> </ul> <p><b><u>Advantage:</u></b></p> <ul style="list-style-type: none"> <li>• Knowledge of remote sensing and image analysis, machine learning, data mining;</li> <li>• Knowledge of the GHSL concept and methodology;</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>	Space, Security and Migration (Ispra) Disaster Risk Management (JRC.E.1) Global Human Settlement Layer Project Further information: <a href="http://ghsl.jrc.ec.europa.eu/index.php">http://ghsl.jrc.ec.europa.eu/index.php</a>
<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>