**FICHE DE POSTE**

<table>
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<tr>
<th>Fonctions :</th>
<th>Postdoc position in remote sensing</th>
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<tbody>
<tr>
<td>Métier ou emploi type* :</td>
<td>Ingénieur de recherche en Informatique, Statistiques et Calcul scientifique</td>
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**Fiche descriptive du poste**

<table>
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<th>Catégorie :</th>
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<tr>
<td>Corps :</td>
<td>Ingénieur(e) de recherche (ASI-R)</td>
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**Affectation**

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<tr>
<th>Administrative :</th>
<th>Ingénieur(e) de recherche (ASI-R)</th>
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<tr>
<td>Géographique :</td>
<td>Saint Pierre, île de La Réunion (Pôle de Protection des Plantes)</td>
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**Missions**

Description :

The person will be recruited as part of the FRAG'ILE (FRAGmentation en milieu InsuLairE, funding: French Office for Biodiversity) and EDENE (Extinction dynamics of endemic trees in exotic-dominated ecosystems, funding: French National Research Agency) research programs, which generally focus on population dynamics of rare and threatened endemic woody species in Reunion island (Mascarenes, Indian Ocean). After the recent colonization of the island by humans during the second half of the seventeenth century, habitat loss and invasions by exotic species have severely affected population and range sizes, and increased the extinction risk of endemic species in general. Unfortunately, historical records that document the dynamics of habitat loss and fragmentation at island scale are rare and disseminated in testimonies from former naturalists and geographers. However, the existence of aerial photograph campaigns (in black and white, color and sometimes infrared) starting from the 1950s provide unprecedented and overlooked information to understand past habitat trajectories.

The recruited person will be responsible for developing photogrammetry methods to analyze the evolution of the habitats of threatened endemic woody species over the last seven decades. The overall objective is to produce time-series of derived metrics to characterize changes in land cover (classifications) and vegetation structure (canopy height models) from historical aerial images of Reunion island taken by the French National Geographic Institute (IGN, see [https://remonterletemps.ign.fr](https://remonterletemps.ign.fr)). The candidate is expected to build a workflow to assemble and georeference individual images and produce time-series of target metrics. Promising approaches include sensor calibration, dense matching, deep-learning and 3D reconstruction of point cloud data.

The position requires a dedicated person with strong skills in image processing, photogrammetry and deep learning.

The production of one scientific publication in an international peer-reviewed journal per year is expected.

**Conditions particulières d’exercice :**
### Encadrement : Oui

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<th>Nb agents encadrés par catégorie :</th>
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<td>Conduite de projet : Oui</td>
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### Compétences*

#### Connaissance, savoir :

- PhD in remote sensing, image processing or photogrammetry,
- Demonstrated strong expertise in image classification based on deep learning and / or the production of 3D point clouds from stereo images,
- Preferably some experience in georeferencing complex data (orthorectification),
- Knowledge of feature extraction and matching algorithms (e.g. SIFT, SURF),
- 

#### Savoir-faire :

- Computing development (C++/Python/R),
- Workflow development (e.g. MicMac, OTB),
- Scientific communication,
- Some knowledge in forest ecology and biological conservation would be a plus.

#### Savoir être :

- Communication and human relationships,
- Scientific rigor,
- Consciousness and intellectual honesty,
- Team work
Details

• Localisation: Pôle de Protection des Plantes, Saint Pierre (Ile de La Réunion, Indian Ocean),
• Contract type: full time temporary position
• Duration: year: 1 year, renewable once (+ 1 yr)
• Expected start: February, 1\textsuperscript{st} 2023

Application

• Before January 19\textsuperscript{th} 2024
• Send CV and cover letter to Olivier Flores (olivier.flores@univ-reunion.fr) and Robin Pouteau (robin.pouteau@ird.fr)