Post-doc / Research Engineer position

Subject: Plant recognition on smartphone using deep learning methods

Duration: 1-year. Expected Starting date: March 2019 (negotiable)

Keywords: plant recognition, deep learning, smartphone programming

Context

The goal of ReVeRIES project (French acronym that means "dreams" and that stands for Interactive, Fun and Educational Plant Recognition on Smartphones) is to use mobile technologies in order to help humans to identify the plants surrounding them. We believe a promising way to recreate the relationship between modern human being and nature is to create smartphone applications that may help them to recognize and deep their knowledge about plants.

ReVeRIES project relies on a mobile application, called Folia, that was developed during the ANR ReVeS project. Folia recognizes species of trees and shrubs (taller than 1m20 and typical of France) by analyzing photos of their leaves. To determine the plant's species, the application simulates the behavior of a botanist, which makes it different from all the other tools available on the market. In the context of ReVeRIES, we propose to go much further by exploring the following aspects: game-based mobile learning, multimodal image recognition and citizen science.

Scientific objectives

The recruited person will participate in the daily research activities of LIRIS laboratory.

More precisely, he/she will develop deep learning models for smartphone devices to recognize plant species from photos of their leaves, flowers, fruits and/or barks. The difficulties to overcome in this context is the impact that the limited memory and processing power of smartphones will have on the produced model. Deep learning methods are very efficient provided with enough training data. Since plant date is still scarce, we will also study methods for artificial data augmentation. We will also study how to take advantage of the smartphone sensors to guide plant recognition, such as date and G.P.S. In summary, the recruited person will be in charge of the development of the new version of Folia based on deep learning methods.

Required skills

We are searching for an outstanding and highly motivated candidate with:
- A PhD degree or an engineer degree (with experience in research) in the domain of computer vision, knowledge in deep learning is essential.
- A list of good publications (at reference journals and conferences in computer vision) could demonstrates the expertise of the candidate.
- Strong programming skills in languages such as C++.
- Knowledge on Objective C would be appreciable.

The candidate must select examples of codes that he/she has previously implemented to show during the interview process. –

Application instructions

The candidates must send the following documents for the contact address:
- A motivation letter explaining the relevance of the candidate for the advertised position,
- A CV with a detailed list of publications,
- Names and contact details of at least two referees
- The report of his/her PhD thesis, if available.

Applications will be accepted until the position is filled, however a higher priority will be given to applications received by ***December 15th***.

Important notice: due to administrative constraints for hiring new fellows, a 2 months delay is expected between the notification of acceptance and the time when the recruited person starts.

Salary

The expected gross salary is about 2300 euros per month, including health care and transport allowances.

Contact

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