2018-00356 - Doctoral/Advanced super-resolution techniques for high quality scanned images

Contract type : Public service fixed-term contract
Level of qualifications required : Graduate degree or equivalent
Fonction : PhD Position
Level of experience : Recently graduated

About the research centre or Inria department

GeoStat projecting makes fundamental and applied research on new non linear methods for the analysis of complex signals and systems, using paradigms and tools coming from statistical physics.

Research themes

GeoStat's research thematics are centered on the following theoretical developments:

- Multiscale methods developed in Physics for the analysis of complex systems,
- Predictibility in complex systems,
- Multiresolution analysis,
- Analysis, classification, detection,

and the following applied objectives:

- Analysis of complex and turbulent signals in earth observation, astronomy and remote sensing,
- Digital implementation of adaptive optics in astronomy,
- Analysis of biomedical signals.

International and industrial relations

GeoStat is working in close collaboration with the following teams:

- Laboratoire d’Astrophysique de Bordeaux.
- ICM-CSIC, Department of physical oceanography, Barcelona, Spain.
- LEGOS Laboratory, UMR CNRS 5566, Toulouse, France.
- Laboratory of theoretical physics and condensed matter University Paris 6, CNRS UMR 7600, Paris, France.
- IRIT, UMR CNRS 5505, Toulouse, France.

Context

Within the framework of a partnership

- value-creation and technology transfer contracts with I2S (Innovative Imaging Solution) Company

Assignment

Geostat is an INRIA research team specialized in advanced signal and image processing. Geostat is associated with a world leader company in imaging devices, I2S (Innovative Imaging Solutions) in a InnovationLab starting in 2017. This PhD offer takes the form of a CIFRE funding where the applicant will work in close collaboration both with Geostat researchers and I2S engineers.

INRIA provides an unique context for research, equal opportunity environnement.

Main activities

In this thesis, the applicant will explore and develop different approaches for proposing efficient solutions to this problem of super-resolution, for instance and among others: optimization approaches (convex and non-convex), machine learning and deep learning approaches, etc.
Skills
Applied mathematics/Physics or Computer science student with a good applied maths background (image processing, Fourier transforms, optimization techniques). A good knowledge of a computer language is necessary.

Benefits package
- Subsidised catering service
- Partially-reimbursed public transport

Remuneration
1982€ / month (before taxes) during the first 2 years, 2085€ / month (before taxes) during the third year

Warning: you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.