THIS APPLICATION IS LIKELY TO BE OPENED

We are looking for a young senior scientist in

Data mining for precision agriculture.

Irstea is the french national research institute of science and technology for environment and agriculture. It is one of the leading institutes for agricultural engineering in Europe. Irstea has a department dedicated to resource-efficient agricultural production systems. It has a program for recruiting high-level temporary scientific staff. If you are a senior researcher (*i-e* a scientist with at least 15 publications) in the field of interest, you should contact us.

In 2015, Irstea's President, JM Bournigal, was the co-author of a report entitled « Agriculture Innovation 2025 », ordered by the ministry of research and ministry of agriculture, which drew research lines to make french agriculture more innovative and competitive. « Digital agriculture » is one of the 4 technologies recommended by this report to prepare the future of agriculture. Irstea has decided to reinforce its research teams on this subject.

To enhance our team of specialists we are seeking :

A full time Senior Scientist (m/f)

working in the field of

Data mining in Precision agriculture.

The position is located in Montpellier, within the DeMo team in ITAP laboratory. DeMo stands for « decision systems tailored for sustainable agroenvironmental processes ». (ITAP stands for "Information-Technologies-environmental Analysis-agricultural Processes"). ITAP is a joint research unit with Irstea and Montpellier SupAgro. The latter is a major faculty of agriculture in France, and renowned worldwide for teaching and research in viticulture. It is part of Agropolis International which brings together more than 2000 scientific researchers working in 112 research units in agriculture, forestry and environment. Agropolis is the leading pole of expertise and research in agriculture in Europe.

The DeMo team develops scientific and technical benchmarks for designing decision support systems and precision agriculture methods and tools. Models and methods at DeMo involve fuzzy logic, discrete event and formal systems, geostatistics, mapping and operational research. DeMo has regular scientific exchanges with several academic partners and international partners, eg. university of Lleida (SP), Talca Univ (CL), University of Sydney (AU), etc. The team conducts academic yet targeted research and has close collaboration with various economic stakeholders, including private companies—startups, very small enterprises (VSEs), SMEs, medium-sized enterprises (MEs), large groups—, technical institutes on collaborative projects or regional experimental stations. Regarding

teaching, DeMo is in charge of the « AGROTIC » Montpellier SupAgro master 2 program (www.agrotic.org), a unique higher education program in Information and Communication Technologies dedicated to agriculture. It also leads two collaborative project in tight relationship with more than 20 private companies : the « digital agriculture chair » and the « digital Mediterranean farm » (http://agrotic.org/lemasnumerique/).

The position:

You will be responsible for methodological and process-oriented research tasks in the area of precision agriculture, at the interface between "agriculture and technology". Your research will focus on precision agriculture data mining. The spatial scale maybe the field, the farm or wider (cooperative production groups, catchment basin,…). Your research should contribute to a data-driven agriculture. It will be about developing mathematical approaches applied to data obtained by crops monitoring, in order to predict some useful agronomic and spatialized variables for crop management. Given the geographical context and ITAP partnership, applications to viticulture (e.g prediction of yield and vintage quality) will be considered with high interest.

Your area of responsibilities :

- Basic research in data mining in precision agriculte like prediction of relevant agronomic information from ancillary spatial (and timed if appropriate) data,
- Identification of agronomic and methodological research issues,
- Design of methodological approaches and algorithms,
- Implementation of algorithms and validation tests on examples,
- Building up and coordination of research projects, concentrating on EU[1] and French national call,
- Participating in the evolution of DeMo research group and the training of young scientists, developing a specific expertise,

Our expectation (your profile):

- A strong scientific expertise supported by a PhD degree with very good results in the field of precision agricultural, scientific computation, data analysis and supervised and unsupervised decision models,
- 8-15 years of professional, international, scientific experience with excellent results (post-doc positions), proven by high quality numerous publications (at least 15 publications expected), acquisition of third-party funding as well as vocational stays abroad
- Skills:
    - Education and/or experience in crop production and agronomic processes (soil physics, crop protection, fertilization, plant nutrition or plant physiology) is required
    - Good technical knowledge in multivariate data analysis (eg statistics, data mining, bayesian approaches) and/or geostatistics is highly desirable

[1] European Union

- Experience in scientific programming and numerical analysis is required (Matlab or Scilab or statistics software R or Python), and experiences with GIS and spatial information acquisition (GNSS) would be appreciated
- Experience with modeling of crop dynamics according to climate could be a plus,
- High proficiency in written and spoken English

We offer :

- Integration in an interdisciplinary team and an attractive working environment with strong connections with agriculture and digital agriculture companies,
- Excellent facilities,
- Access to national and international networks for your scientific development

The salary will depend on qualification and experience, it will start at 3000 €/month and may be increased up to 4800 € gross monthly for up to 36 months (based on an additionnal competitive grant – conditions apply). The fulltime temporary position is 4 years (3+1) with the prospect of having the opportunity to becoming a permanent staff after a positive assessment and a national competitive exam.

For further information please contact asap

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Visit our websites http://www.irstea.fr/en/research/research-units/itap.

Please contact us asap or send your application (application letter + CV + list of publications) via e-mail to bruno.tisseyre@supagro.fr (head of DeMo group) and to veronique.bellon@irstea.fr (head of department) before **15 September 2016**. Please combine documents in a single pdf file if possible.