Offre n°2025-08746

Temporary scientific engineer / Development of a multi-disease spatial epidemiological model

Type de contrat : Fixed-term contract

Niveau de diplôme exigé : Graduate degree or equivalent

Fonction : Temporary scientific engineer

A propos du centre ou de la direction fonctionnelle

The Inria centre at Université Côte d'Azur includes 42 research teams and 9 support services. The centre's staff (about 500 people) is made up of scientists of di?erent nationalities, engineers, technicians and administrative staff. The teams are mainly located on the university campuses of Sophia Antipolis and Nice as well as Montpellier, in close collaboration with research and higher education laboratories and establishments (Université Côte d'Azur, CNRS, INRAE, INSERM ...), but also with the regiona economic players.

With a presence in the fields of computational neuroscience and biology, data science and modeling, software engineering and certification, as well as collaborative robotics, the Inria Centre at Université Côte d'Azur is a major player in terms of scientific excellence through its results and collaborations at both European and international levels.

Contexte et atouts du poste

This postdoctoral position if funded by the Ecophyto PAPEETE *Promoting agroecology through integrative health risk prediction based on participatory epidemiosurveillance data at territorial scale* project, which brings together partners from INRAE, CNRS and Inria. This transdisciplinary project aims at providing a proof of concept, for wheat diseases, that using participatory epidemiosurveillance, in addition to the official plant health bulletin, (i) enables a local assessment of multi-disease risk, and (ii) encourages stakeholders to significantly reduce pesticide use.

The postdoctoral fellow will join the MACBES team (Inria, INRAE, CNRS, Université Côte d'Azur) in Sophia Antipolis and will closely collaborate with Suzanne Touzeau (MACBES & M2P2 teams) and Florence Carpentier (AgroParisTech & MaIAGE, INRAE) based near Paris.

The postdoctoral fellow will interact with other PAPEETE partners and the M2P2 team at ISA (INRAE, CNRS & Université Côte d'Azur).

Mission confiée

In the PAPEETE project, we aim at improving the local assessment of multi-disease risk in wheat crops by incorporating multiple data sources, including participatory epidemiosurveillance data. Several scenarios are considered, and a decision-support application will be developed.

The project builds upon several years of academic data collected in the Plaine & Val de Sèvre area (near Niort), which have revealed the influence of landscape features on the epidemiology of wheat diseases. We also have an existing multi-epidemic dynamics model. The engineer will be responsible for improving the existing multi-epidemic dynamics model. Specifically, their tasks will be to: (1) spatialize the model, (2) incorporate landscape effects, and (3) modulate outputs using weather data and epidemiosurveillance information - both participatory (local) and from the regional BSV network. The data will be provided by the project team, and the engineer will focus on integrating them into the modeling framework and analyzing model behavior.

The results of this work will feed into the development of a real-time, spatially explicit tool to help local farmers assess their risk of multiple wheat diseases and support decision-making to reduce pesticide use.

The work will be **based on**:

- data,
- a stochastic, discrete-time, epidemiological model,
- python and C++ codes.

The **objectives** of this position are:

- epidemiological modelling,
    - landscape modelling,
    - multi-disease timing and interactions,
- calibration,
- simulations.

Principales activités

Generic activities include: literature review, data processing, reporting, paper writing, participation and presentation in project meetings.

Specific activities include:

- dynamical model development,
- programming and numerical simulations (using a computing cluster),
- model calibration,
- numerical exploration (sensitivity analysis).

Compétences

- Background in population dynamics and/or epidemiological modelling.
- Experience in programming (C++ or python).
- Knowledge of inference methods would be a plus.
- Proficiency in written and spoken English.

Avantages

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Contribution to mutual insurance (subject to conditions)

Rémunération

From 2692 € gross monthly (according to degree and experience).

Informations générales

- **Thème/Domaine :** Modeling and Control for Life Sciences
- **Ville :** Sophia Antipolis
- **Centre Inria :** Centre Inria d'Université Côte d'Azur
- **Date de prise de fonction souhaitée :** 2026-01-01
- **Durée de contrat :** 12 months
- **Date limite pour postuler :** 2025-09-30

Contacts

- **Équipe Inria :** MACBES
- **Recruteur :**
  Touzeau Suzanne / suzanne.touzeau@inria.fr

A propos d'Inria

Inria est l’institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 215 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3900 scientifiques pour relever les défis du numérique, souvent à l’interface d’autres disciplines. L’institut fait appel à de nombreux talents dans plus d’une quarantaine

de métiers différents. 900 personnels d’appui à la recherche et à l’innovation contribuent à faire émerger et grandir des projets scientifiques ou entrepreneuriaux qui impactent le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 200 start-up. L'institut s'e?orce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

L'essentiel pour réussir

- Modelling skills in population dynamics or epidemiology.
- Marked interest in biological applications and motivation for interdisciplinary work.
- Good communication skills to ensure a smooth collaboration with Florence Carpentier.

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.

Consignes pour postuler

Applications must be submitted online on the Inria website. Collecting applications by other channels is not guaranteed.

Sécurité défense :
Ce poste est susceptible d’être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L’autorisation d’accès à une zone est délivrée par le chef d’établissement, après avis ministériel favorable, tel que défini dans l’arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l’annulation du recrutement.

Politique de recrutement :
Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.