Offer #2023-06822

Data Scientist internship - Statistical learning for prediction of the response to immunotherapy in lung cancer

Level of qualifications required: Graduate degree or equivalent

Fonction: Internship Engineering

Level of experience: Recently graduated

About the research centre or Inria department

The Inria centre at Université Côte d'Azur includes 37 research teams and 8 support services. The centre's staff (about 500 people) is made up of scientists of different 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.

Context

This engineering position will take place in the environment of the Inria-Inserm team COMPO (COMputational Pharmacology in Oncology), located in the La Timone health campus. The team is composed of mathematicians, data scientists, pharmacists and clinicians and is a unique multidisciplinary environment focused on developing novel computational tools for decision-making in clinical oncology.

Specifically, the project will consist in applying an end-to-end machine learning pipeline to novel clinical data. A rich dataset of 450 patients containing multi-modal and longitudinal data from immuno-histochemistry, imaging, pharmacokinetics, immunoprofiling, soluble biomarkers and sequencing data will be used. This dataset is the result of a large-scale collaboration as part of the PIONeeR Consortium (French RHU study). The PIONeeR project aims at predicting response/resistance to immune-checkpoint inhibitors for patients with advanced non-small cell lung carcinoma. The position will involve strong interactions with clinicians from APHM and biologists, from academy (CIML and CRCM in Marseille) as well as biotech firms (e.g. Veracyte) and pharma companies (InnatePharma, Imcheck therapeutics).

The objective is to exploit and contribute to the model and code developed by the team, delivering meaningful insights to biologists and clinicians, making a significant breakthrough in advanced lung cancer research. This position is deeply involved in translational research.

Assignment

The recruited person will be in charge of the biostatistical analysis (involving multiple hypotheses testing, survival analysis, machine learning predictive modelling) of biomarker data to understand the response to immunotherapy in non-small cell lung cancer.

Biologists and clinicians request many adhoc analyses, which you'll be in charge of delivering and interpreting.

Main activities

Main activities:

Data exploration and visualization
Biostatistics (e.g. statistical tests, survival analysis)
Machine learning (unsupervised and supervised)  
Craft synthetic reports and publication-ready figures

Additional activities:
Review the literature  
Test and enhance the codebase  
Presentation to a non-technical audience  
Conceive dashboards (e.g. Shiny apps)

Skills

Technical skills and level required:
- Excellent programming skills in a scripting language (R and/or Python)
- Strong background in statistics and machine learning
- Hands-on experience with real-world data analysis
- Ideally, experience in mixed-effects modeling

Benefits package

- 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 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)

General Information

- **Theme/Domain:** Computational Neuroscience and Medicine  
  Biologie et santé, Sciences de la vie et de la terre (BAP A)
- **Town/city:** Marseille
- **Inria Center:** Centre Inria d'Université Côte d'Azur
- **Starting date:** 2024-02-01
- **Duration of contract:** 6 months
- **Deadline to apply:** 2024-02-29

Contacts

- **Inria Team:** COMPO
- **Recruiter:** Benzekry Sebastien / Sebastien.Benzekry@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

The keys to success

You don’t just apply the reference method to a given problem; instead, you are eager to thoroughly understand the information contained in the data.

**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.

Instruction to apply

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

The position is open to:
- Inria internal mobility, remuneration according to statutory conditions
- mobility from other public body, by posting for a period of three years, renewable, remuneration according to statutory conditions
- in short term contract from service fixed-term

**Defence Security:**
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

**Recruitment Policy:**
As part of its diversity policy, all Inria positions are accessible to people with disabilities.