Neurodegenerative disease progression: Development of numerical models, application to medical cohorts & deployment of real-life tools.

[ Research Engineer ] x [ Data Scientist ] x [ Software Developer ]

You are one of them & interested in neurosciences? This might be for you.

[ KEYWORDS ]
Machine Learning – Neurodegenerative disease progression – from Theory to Clinics

[ GENERAL AIM ]
Aramis Lab develops state-of-the-art technologies for the diagnosis, monitoring & prognosis of patients with neurodegenerative diseases, such as Alzheimer’s, Parkinson’s or Huntington’s disease. Taking advantage of large collection of clinical and neuroimaging data, these innovations rely on statistical tools & Machine Learning algorithms to model the progression of these diseases. Such techniques are also designed to better select patients and assess treatment efficacy in clinical trials.

[ JOB DESCRIPTION ]
Years of research have led a cutting-edge framework for the estimation of neurodegenerative disease progression as shown on www.digital-brain.org and in “Simulating Alzheimer’s disease progression with personalized digital brain models” [Koval et al, 2019]. These developments, gathered in the Leaspy Python package, have reached a broad audience - pharmaceutical companies, start-ups and laboratories - that is willing to benefit from it.

To this end, we are hiring various profiles to enhance the following topics:
- R&D of new models & algorithms of disease progression,
- Scientific research on large neurodegenerative diseases cohorts
- Leveraging the potential of these innovations into real-life tools used by practitioners

[ PROFILE ]
Interested in major public health issues, you also want to work at the interface of mathematics, computer science & neurosciences. You are problem solver and result-oriented, eager to transfer front-edge research to real-life applications that may change the way we treat patients with brain diseases. You have strong relational skills to communicate with scientists from various disciplines.

Typically a M.Sc or PhD graduate, you master some advanced topics in Applied Maths (Statistical Learning, Machine Learning, Deep Learning, …) and scientific development (Python, Git, optimization as GPU or HPC). You know how to develop in a collaborative way. Front-end skills (web-dev, JavaScript) and scientific community management (forum, tutorials) are a plus.

But more, we are interested in any skills you might consider relevant to tackle these challenges. Do not worry, no medical record is needed – but you will learn a lot.
[ TEAM ]
The **ARAMIS lab** is ideally located at the **Brain and Spine Institute** (ICM), one of the major research institutes for neurosciences in Europe. It is at the heart of the Pitié-Salpêtrière hospital, downtown Paris. The lab gathers researchers with background in applied mathematics and computer science, research engineers and clinical experts in the field of neurodegenerative diseases.

[ STARTING DATE ]
Between now (up to the administrative forms) and October.

[ DURATION ]
Depends on the contract. Typically from 1 to 3 years.

[ REFERENCE ]
- Aramis website : [www.aramislab.fr](http://www.aramislab.fr)
- Leaspy code : [https://gitlab.com/icm-institute/aramislab/leaspy/](https://gitlab.com/icm-institute/aramislab/leaspy/)
- Simulating Alzheimer’s Disease Progression with Personalized Digital Brain model https://hal.inria.fr/hal-01964821/file/SimulatingAlzheimer_low_resolution%20%281%29.pdf
- Website related to the previous paper : [www.digital-brain.org](http://www.digital-brain.org)

[ SALARY ]
Depending on experience

[ APPLICATION & CONTACT ]
Contact stanley.durrleman@inria.fr and igor.koval@inria.fr.

Join a CV & Motivation letter.

Home page:
- [www.aramislab.fr](http://www.aramislab.fr)
- [www.igorkoval.com/](http://www.igorkoval.com/)