

Engineer in scientific computing at the interface with biology & physics

Job application portal: <https://bit.ly/3rj300A>

Deadline: mid-January 2021

Place: Collège de France
Center for Interdisciplinary Research in Biology
11, place Marcelin Berthelot, 75005 Paris

Team: *Multiscale Physics of Morphogenesis* www.turlierlab.com

Supervision: Hervé Turlier, team leader herve.turlier@college-de-france.fr

Phone: +33.1.44.27.14.10

Duration: 24 months, starting Feb 2021 - renewable

Salary: between € 2,000 and € 2,500 net monthly depending on experience

Activities: The ERC DeepEmbryo project, led by Hervé Turlier, has a strong computational aspect, which requires the support of a research engineer expert of scientific computing. She/he will be expected to be specialized in computer graphics and numerical optimization, and may have competences in deep learning methods. The engineer will be enrolled to develop and implement computer graphics, optimization and artificial intelligence algorithms in cooperation with members of the team "Physics multiscale morphogenesis". She/he will contribute to the numerical modeling of morphogenesis and to imaging/omic data analysis. She/he will maintain softwares developed in the team and will develop dedicated graphical user interfaces. She/he will assist the team leader in the training of newcomers to the softwares used in the team and will have the opportunity to co-supervise students.

Missions: The recruited engineer will be responsible for:

- developing new computer graphics algorithms in C++ in 2D and 3D.
- developing new numerical optimization algorithms in C++.
- developing new machine learning algorithms (deep-learning) in Python and/or C++.
- developing graphical user interfaces (GUI) for software developed within the team and Python interfaces of C++ codes.
- assisting new members of the team in getting started with softwares and good IT practices (git repositories, usage of the cluster, etc...)
- participating to the training of team members in programming and algorithmics
- ensuring the management of the team's IT cluster, including CPU, GPU and storage servers (software updates, libraries, management of Linux permissions)
- updating regularly the team's website(s)
- participating to the scientific life of the team and of the host Institute

Expected profile: The candidate should have an engineering degree or hold a PhD in computer science, applied mathematics or physics.

Required Skills :

- expertise in C++ and python programming
- solid knowledge of computer graphics and/or computer vision
- solid knowledge of optimization methods and C++ linear algebra libraries
- mastery or interest in machine learning methods (deep-learning)
- availability, responsiveness and autonomy
- organization and rigor in daily work
- communication and pedagogy skills
- developed sense of teamwork and proficiency in English

Working environment: The successful candidate will be welcomed into the interdisciplinary team "Multiscale physics of morphogenesis" led by Hervé Turlier which will have around 8 to 10 people by 2021. The team is located at the Collège de France, in the heart of the Latin Quarter in Paris. Integrated within the PSL University, and close to other major institutions such as the Ecole Normale Supérieure and the Institut Curie, the Collège de France constitutes an exceptional scientific environment unique in the world.

The successful candidate will have access at an individual workstation in renovated premises, to powerful desktop and laptop computers and to a high performance computing cluster fully dedicated to the team (648 CPUs, Nvidia DGX A100 and DGX Station and 1Po storage).

Application procedure: The candidate must send a CV, a cover letter and at least one letter of recommendation via the CNRS employment portal: <https://bit.ly/3rj300A>

The position is part of the ERC DeepEmbryo project.