Postdoc position at Institut Curie in Systems Biology Group

Explainable machine learning for systems biology of cancer

Duration: 18-36 months with possibility of extension, starting immediately

Links http://curie.fr, http://u900.curie.fr http://sysbio.curie.fr, https://prairie-institute.fr/

Context
Institut Curie is one of the biggest European institutions for cancer research with strong and old interdisciplinary traditions. It also comprises a hospital specialized in cancer treatment, and therefore dispose of a continuum of expertise from fundamental research to patient care. It is located in the centre of Paris in a both cultural and scientific rich environment (http://curie.fr).
The "Bioinformatics and Computational Systems Biology of Cancer" Unit (U900 INSERM, Mines ParisTech, Institut Curie) involves about 90 researchers and students. It is a very active and growing interdisciplinary team of biologists, physicians, mathematicians, statisticians, physicists and computer scientists (http://u900.curie.fr).

Our research group Computational Systems Biology of Cancer focuses on deciphering determinants of tumorigenesis and tumor progression and proposing new strategies to combat cancer. The domains of expertise are big data analysis; single cell data analysis; patient stratification; signaling network construction and mathematical modeling; study of synthetic interactions in cancer mechanisms, drug response prediction and many others (http://sysbio.curie.fr). The group has strong expertise in application of machine learning, mathematical modeling to cancer omics data aiming at solving important clinical problems (https://sysbio.curie.fr/publications.html). Two members of the group hold chairs of Paris of Artificial Intelligence Research Institute (https://prairie-institute.fr/). The group has also long term experience in implementing scientific methodology of data and biological network analysis into user-friendly software, currently used by other researchers world-wide (the list of developed software can be found at http://sysbio.curie.fr/software).

Job description and skills

We expect a candidate with a strong background in statistics, machine learning, computational systems biology or physics. The successful candidate should be familiar with multidimensional omics data analysis in biology, and be proficient in high-level languages like Python, R, Java or Perl. Familiarity and experience with existing systems biology methods and software would represent a strong advantage. Ideally but not absolutely required, the candidate should be able to demonstrate some knowledge of basic biological mechanisms involved in cancer and have experience of collaboration with biologists for solving concrete biological problems. Excellent communication skills and team spirit, and a capacity to work in autonomy are essential. Fluent English both spoken and written is required.

Depending on the candidate's interest and experience, he or she will be involved in one of the EU or national projects in which the group is involved (see the list at https://sysbio.curie.fr/projects.html). In these projects, the candidate will work, in tight collaboration with experts in cancer biology, on applications of existing machine learning or computational modelling methods to understand the biological and clinical questions related to cell fate decision, tumor heterogeneity, role of immunity in cancer. The candidate will have an opportunity to get experience with most up-to-date technologies for omics data generation and analysis, and contribute to development of new computational methods for data analysis and mathematical models of complex biological mechanisms.

Degree: **PhD level in computer science, bioinformatics or systems biology**

Send CV, motivation letter, and contacts details of 2-3 references to recruitment.U900-SYSBIO@curie.fr and indicate as subject the reference SB20A-DA