

Title: Post-doctoral position for the integration of heterogeneous biomedical data

Start date: From November 2018

Contract duration: 24 months

Gross salary: commensurate to experience

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Description of the position. Data integration is the process of integrating multiple modalities to produce more consistent, accurate, and actionable information than that provided by any individual modality. Motivations for multimodal data integration are numerous: obtaining a global picture of the system at hand; identifying common or distinctive elements across modalities or time; improving decision making; etc. Within this data integration framework, the selected candidate will contribute to improving both theoretical and applicative components for multimodal data integration, in particular by developing novel strategies for handling missing data imputation and longitudinal study schemes.

This methodology will be applied on the iMAP dataset to address various questions raised by scientists and clinicians, especially for the identification of biomarkers to sustain the rational development of innovative biotherapies. iMAP is a “Recherche Hospitalo-Universitaire” consortium aimed at developing low dose IL2 as a therapy of autoimmune diseases, and likewise study the biology of IL2 in humans. This project is coordinated by the i3 laboratory (www.i3-immuno.fr) located on the Pitié-Salpêtrière hospital campus in Paris (13ème).

The iMAP database includes, for several groups of patients (different pathologies and healthy controls), a variety of information, acquired at multiple time points: (i) clinical data, (ii) standard biology, (iii) multiomics data (flow cytometry, immunoproteomics, TCR repertoire, transcriptomics and microbiome).

Requirements (training/expertise) and profile. PhD in applied mathematics/statistics/machine learning. Previous experience in multivariate data analysis applied to biological data will be strongly appreciated. Strong programming skills in at least one programming language (R, Matlab or Python) are mandatory. The selected candidate will work within the Bioinformatics/Biostatistics core facility (iCONICS) of the Brain and Spine Institute (ICM, Paris 13ème), and will interact with researchers of the Laboratoire des Signaux et Systèmes (L2S, CentraleSupélec, Gif-sur-Yvette) and investigators involved in the iMAP project.

To apply, submit a cover letter indicating past research experience, motivation for the position, expected availability date, a curriculum vitae, and at least 2 references, to arthur.tenenhaus@centralesupelec.fr and ivan.moszer@icm-institute.org.