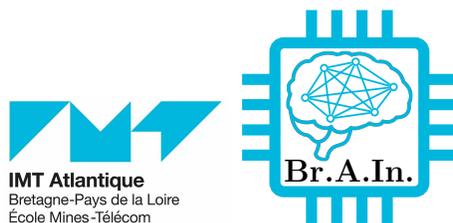


Postdoctoral fellowship (2 y.) in graph signal processing



IMT Atlantique, Brest, France

IMT Atlantique has an opening for a fully-funded two-year postdoctoral fellowship starting no later than June 2018, to work on Graph Signal Processing and potential applications to Neuroimaging. The host team is Br.A.In. (Brain-inspired Artificial Intelligence <http://www.brain.bzh>), and is in the Brest Campus.

1 Scientific context

Several application domains rely on multivariate spatiotemporal signals such as transportation networks, energy network, social networks or neural networks. Under the natural assumption that the signal properties are related to the topology of the graph where they are supported, graph signal processing (GSP) offers algorithms that fruitfully leverage this relational structure, and can make inferences about these relationships when they are only partially observed. Developing GSP tools specifically intended to advance modeling and analytics of multivariate signals is a new, fertile area of investigation. In particular, the positioning of the Br.A.In. project regarding GSP is targeted towards the following issues: (1) finding optimal graph representations and adapting machine learning approaches accordingly, (2) generalizing GSP approaches to dynamic graphs in order to fully capture the spatiotemporal complexity of multivariate signals, and finally (3) developing new approaches to enhance the understanding and interpretability of machine learning and deep learning methods using metrics derived from GSP.

We are seeking a candidate that will contribute to our research effort on GSP by proposing innovative theoretical approaches, or extensions to existing approaches, related to at least one of the aforementioned issues. Our main target application is the analysis, decoding and interpretability of Neuroimaging data (Electroencephalography EEG or functional Magnetic Resonance Imaging fMRI), but candidates with interest or background in other application domains are encouraged to apply as well.

2 Details and requirements

The present postdoctoral fellowship is funded by the Sustainable Attractivity Strategy of the Brittany Region, with the goal of attracting high profile junior researchers from all over the world, offering exceptional conditions for long-term academic development.

IMT Atlantique is a public technological university focusing on the training of engineers at the MSc. level and junior researchers at the PhD level. Being a technological university, IMT Atlantique benefits from a advantageous status compared to french public universities. As such, we offer very competitive salary packages, with postdoc wages corresponing to a junior assistant professor level. Successful candidates will also benefits from 49 annual paid holidays, as well as access to multiple benefits from the institutions' union (such as campus activities or sea sports). In addition, living costs in the Brest bay area are exceptionally low, with a high quality of life, and the Brest campus of IMT Atlantique is ideally located at the sea front.

The position is open immediately and must start **no later than June 2018, for a duration of 24 months**. The postdoc fellowship is accompanied with overheads for travel expenses covering (a) the participation to international conferences, (b) article processing charges for open-access publications and (c) acquisition of a computation server dedicated to the postdoc project. The postdoc fellowship will be fully devoted to his research projects, and may optionally (but will not be required to) contribute to teaching activities in machine learning, computer science, signal processing or electronical engineering.

Candidates must have defended a Ph.D. related to machine learning or computer science, or signal/image processing. Candidates with a PhD in neuroimaging with solid programming skills and a strong interest for machine learning are also welcome to apply. An additional requirement pertains to the attractivity strategy related to the regional funding; in order to attract international applications, candidates must have spent **a minimum 12 months outside France after June 2014**.

Please send your curriculum vitæ, contacts for two references, as well as a cover letter to nicolas.farrugia@imt-atlantique.fr.