

Postdoctoral position in machine-learning for EEG

Bern University Hospital, Switzerland

A postdoctoral position in human brain electrophysiology is available at the University hospital of Bern, Switzerland under the co-supervision of Prof. Maxime Baud (<https://www.neuro-elab.com/>, computational and experimental neuroscience, sleep, epilepsy) and Prof. Timothée Proix (<https://ndlab.ch/>, computation neuroscience, language, epilepsy).

Over the coming years, we are running parallel trials of seizure forecasting in patients with epilepsy and animal models of the disorder, based on chronic EEG recordings (months) during wake and sleep. To help with the analysis of massive amounts of EEG data, we are looking to hire a passionate postdoc with desire to build forecasting algorithms aiming at estimating the risk of seizures 24 hours in advance. This project requires strong notions of engineering and computational skills.

Start of project early Q3-4 2025, at the University of Bern. Yearly, renewable contract (currently up to 4 years) with Swiss salary in compliance with guidelines of the University.

Required qualifications

- Applicant should hold a PhD in any engineering field, physics, or neuroscience and have published scientific literature as a first author.
- Strong abilities in computer programming (Python and/or Matlab), ideally also in C/C++.
- Prior experience with machine learning methods, signal analysis and advanced data analysis techniques applied to neural timeseries (EEG > fMRI).
- Strong interpersonal communication skills in English and good written English.
- Curiosity, critical thinking, problem-solving abilities attested by a reference.

Advantageous qualifications.

- Hands-on experience with human intracranial EEG recordings.
- Experience with deep-learning, machine-learning or statistical model development

Your tasks

- The deliverable is a **real-time seizure forecasting algorithm**.
- Formulate a roadmap and derisk the project from an engineering angle.
- Establish computationally efficient pipelines for signal analysis and machine learning on vast amounts of EEG data.
- Increase knowledge in physiology through participation in weekly meetings and reading.

To apply, please send a one-page motivation letter dedicated to this specific project, your CV, your papers, your PhD thesis, and contact information for 2-3 references to Prof. Maxime Baud (maxime.baud.neuro (at) gmail.com). Screening of applications starts in May 2025 and will continue until the position is filled.

Posted May 2025.