

Postdoctoral Position

Predicting epilepsy before it starts

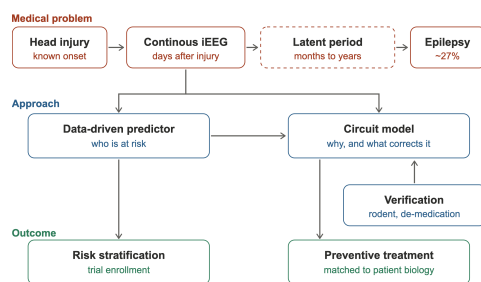
Foundation models and bioplausible circuits on human intracranial EEG. In the group of Tristan Manfred Stöber at the Campus Institute Data Science (CIDAS), University of Göttingen, funded by the Faculty of Mathematics and Computer Science, with clinical and modelling partners in Frankfurt.

Salary	TV-L E13, 100 %: ~€5,366-5,873/month
Benefits	annual bonus, additional VBL pension
Duration	12 months, extension intended
Start	as soon as you can - the data are ready
Place	CIDAS, Göttingen, Germany
Applications	rolling, first review 24 Sep 2026

What is the position about?

Epilepsy care is reactive: we treat after the first seizure. But the disease starts earlier - after a head injury the brain reorganises for months to years, a window in which it could still be steered, and nobody can tell who is inside it.

We have a unique way in. Roughly a quarter of patients with acute subdural hematoma develop post-traumatic epilepsy, and they are monitored with subdural electrodes within days of the injury - long before any seizure. Our Frankfurt partners hold those recordings with confirmed outcomes, plus a rodent dataset spanning the full course of epileptogenesis in over 85 animals. Two steps follow.



Two models, one set of acute recordings: who is at risk, and why.

1. Predict. Fine-tune an existing intracranial-EEG foundation model on the acute recordings, by self-supervised and contrastive learning, and test whether it separates patients who later develop epilepsy from those who stay resilient. There is a starting point: in our rodent model the aperiodic (1/f) exponent - a proxy for excitation/inhibition balance - tracks early epileptogenesis and predicts which animals become epileptic.¹ Whether it transfers to humans is open - your first question.

2. Model. Then ask why. With AutoMIND, the deep inverse modelling framework of our partner Richard Gao (Goethe University Frankfurt), infer patient-specific parameters of a bioplausible cortical circuit from the same recordings - synaptic balance, adaptation timescales, conductances - turning a risk flag into a mechanism.

A pilot - and why agility is the point

Twelve months will not solve post-traumatic epilepsy, and this position does not pretend to: it is a pilot - find out fast whether the rodent signal has a human counterpart. Nothing here waits on data collection or a method still to be invented, so agility is the operative skill: short cycles, a first result in weeks, a direction dropped once it stops paying off. It is one step in a bigger effort with our Frankfurt partners - the corresponding consortium proposal is under review -

aiming eventually at a clinical means of preventing epilepsy instead of managing it.

Who are we looking for?

- a PhD, or close to completion, in computer science, physics, mathematics, computational neuroscience, biomedical engineering or a related quantitative field;
- fluent programming and a solid command of modern deep learning on time series - self-supervised pretraining, transfer to small labelled sets;
- experience with neural recordings (EEG, iEEG, LFP) is a strong plus, as is simulation-based inference or circuit modelling for step 2;
- the discipline clinical data demands: careful validation, no leakage across patients, precision about what you have actually checked.

Nobody arrives with all of it. What matters more is the mindset: chasing the question rather than the result, and taking problems apart instead of waiting to be unblocked. Applications from any gender, country and walk of life welcome.

What do we offer?

- a question with a clear clinical stake, and the data to attack it now;
- two collaborators you work with directly: Michael Strüber (Epilepsy Center Frankfurt) clinically, Richard Gao (Goethe University) on modelling;
- close mentorship, and room to shape the project as it moves;
- GWDG's Secure HPC environment for GDPR-relevant clinical data, already in place, plus budget for conferences and open-access publication;
- a path beyond the 12 months: extension is intended.

Where you would be

CIDAS is a young place and it shows: it gathers machine learning, statistics and data science from across the campus into one institute, and much of it is run by early-career PIs building their groups right now - short paths, few hierarchies, a lot of momentum. Students, postdocs and professors also do things together outside the seminar room; the yearly road-bike tour up the Brocken is the one to train for. And Göttingen's scientific density is out of all proportion to its size - Gauss, Hilbert and Heisenberg worked here, several Max Planck Institutes next door.

How to apply

One PDF - motivation letter, CV, two referees - to tristan.stoeber@posteo.net, subject "Postdoc - Epileptogenesis". Applications by 24 September 2026 receive full consideration; the position stays open until filled and we reply quickly. Unsure whether it is for you? Write to me before you apply. More about the group at tristanstoeber.github.io.

¹Strüber, Stöber et al., *Epilepsia* (2026), doi:10.1002/epi.70386.