Hey, let me introduce myself. I’m your brain and I love to PROCESS INFORMATION. I’m really good at that!

About 86 billion nerve cells are non-stop busy processing INPUTS and tuning your BEHAVIOR.

How can this work? Good cooperation and communication. We even speak our very OWN LANGUAGE here in the brain.

Nerve cells communicate with each other using currents of charged particles.

You can think of it like Morse code.

In order to PRECISELY UNDERSTAND the language of the brain, we investigate whether there really is a RELATION between certain oscillations and a measured function of the brain.

To do this, we change the oscillations in a very specific way.

Hehe, that tickles!

If many nerve cells are working simultaneously, we can visualize the oscillations - based on the sequence of all Morse code signals and pauses - with an EEG.

Nerve cells that oscillate “in unison” can exchange information and work together.

Even over long distances.

What we do is called TACS**. We stimulate areas in the brain with fine, precisely controllable alternating currents. Then we observe whether this procedure changes the measurable activity in different areas.

How does that feel now? Is that okay for you?

It prickles a little bit. All good.

Is it okay with you if we continue?

Yes.

The changes are only slight and will disappear on their own. Nevertheless, we learn quite a lot this way.

With our method, we can actually “talk to” the brain in a targeted way. So, hopefully, in the future we will be able to better understand the connections between external stimuli, measurable brain activity and certain functions of our body.

So, that was like...

In the long run, this could help us alleviate symptoms of diseases like Parkinson’s or stroke.

* Electroencephalography (EEG) is a method of measuring and recording the activity of nerve cells directly on the scalp.
** TACS stands for transcranial alternating current stimulation. Here the brain is stimulated from the outside via the scalp.