**Workshop Option 2: 23.09.2021 9 a.m. – 4 p.m.**

A primer on Machine Learning/Deep Learning with a focus on Neuroscience

Workshop Description:

Throughout the last couple of years, ML and DL become exponentially more and more prominent within the majority of research fields. Neuroscience is no exception to that, as things like personalized medicine, image/data processing and the combination of biological and artificial neural networks are treated as central research questions. However, what's actually behind all these buzzwords? Is ML and DL really necessary in the majority of cases? Can they actually applied to any kind of data and help solve distinct problems? Within this workshop we will introduce and discuss important aspects of these methods and evaluate their usability, as well as potential application to research projects of the attendees.

- Machine learning
  Within the first part of the workshop, we will focus on "classical" machine learning. But what is it actually and what are important aspects folks should know about?
- Deep learning
  Naturally, the complexity of algorithms regarding data processing scales up and within that, the application of deep learning in the field of neuroscience became more and more prominent. Here, we're going to dive a bit into central questions like: is it really AI, how does it work and can I apply it to my data?
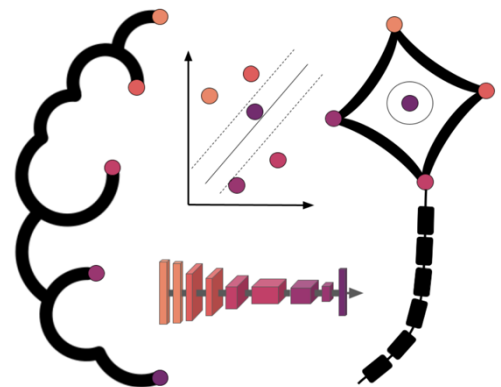
Prerequisites:

A certain amount of digital literacy, programming, etc. is required. Some resources will be provided which participants can use to prepare for the course.

You will need your own laptop for practical exercises.

Instructors:

- Peer Herholz *(Postdoctoral researcher at UNIQUE - Unifying Neuroscience and Artificial Intelligence, Quebec and Montreal Neurological Institute-Hospital)*

- José C. García Alanis *(Researcher, Department of Psychology, Child and Adolescent Psychology, Philipps-Universität Marburg)*