

INT internal 1 ½ day workshop, Feb. 11-12th 2013

Sharing analysis techniques for electrophysiological data

The general goal of this internal workshop is to allow for all of the participants to gain knowledge about which type of data from behaving subjects (rats, monkeys, humans) are recorded at the INT, and which types of techniques are currently used (or needed) to analyze this data.

We hope that this workshop will allow us to 1) learn more about what we can do with our current data, 2) know who of our INT colleagues can give advice on certain analysis techniques, and 3) maybe even get inspiration for new ways to retrieve/record the data, or for recording complementary types of data.

The meeting will take place at INT, meeting room 1st floor.

Both days, we will share lunch, while discussing :-)

Monday Feb. 11th 12:30-17H

Common pizza lunch and informal intro of participants, 12:30-13:30H

Session 1: Intro of signals and equipment, start 13:30H (Chair: Bjørg, 1H10)

- Single-tip and laminar electrodes (Bjørg, 5min)
- Signals: spikes: SUA, MUA spikes, high-pass (analog) MUA. Local field potentials (LFPs): Evoked potentials (EPs) and oscillations (Bjørg, 5min)
- UTAH array (Thomas, 5min)
- Tetrodes (Julie, 5min)?
- EEG electrode placement/numbers/ground/filter etc (Thomas, 5min)
- Features of different recording devices/software (round table, 10min)
- Spike sorting: online vs. offline (Alexa, 15min)
- Online vs. offline filtering (Alexa, 15min)

Short break (15min)

Session 2: Analysis on spikes and related statistics (Chair: Simon, 2H)

Firing rate measures and analysis (Simon/Paul, 15min)

Baseline selection (Simon, 10min)

Joak (35min):

- Variability: e.g. Fano factor and CV
- Precise spike synchrony, cross-correlations and noise-correlations
- Re-sampling methods

Circular statistics (Bjørg, 10min)

Multiple testing corrections (Simon/Andrea, 15min)

Decoding and information analysis (Romain, 15min)

General discussion (1H) spread throughout the day

Tuesday Feb. 12th 10-17H

Session 3: Large-scale data analysis (Chair: Florent, 2H15+30)

- Analysis of LFP and EEG evoked potentials (Björg/Thomas, 15min)
- Analysis of time/frequency data (LFP/EEG/MEG) (Andrea, 1H30)
- GLM (Andrea, 30min)

Common Chinese/Thai lunch, 12:30-13:30H

Session 3: (cont.)

- ICA on EEG (Nicole, 15min)
- Travelling waves (UTAH array spiking activity) (Giacomo, 15min)

General discussion (1H) on topics in session 3 (spread out)

Short break (15min)

Session 4: Facilities and interactions at INT (Chair: Alexa, 1H15)

- NEO (Florent, 10min)
- Analysis on INT cluster (Florent, 10min)
- How can we share programs/data: discussion (25min)
- Discussion: 'groupe de travail'?, what is missing at INT? (30min)