Data analysis and modeling of calcium activity in mice somatostatin interneurons

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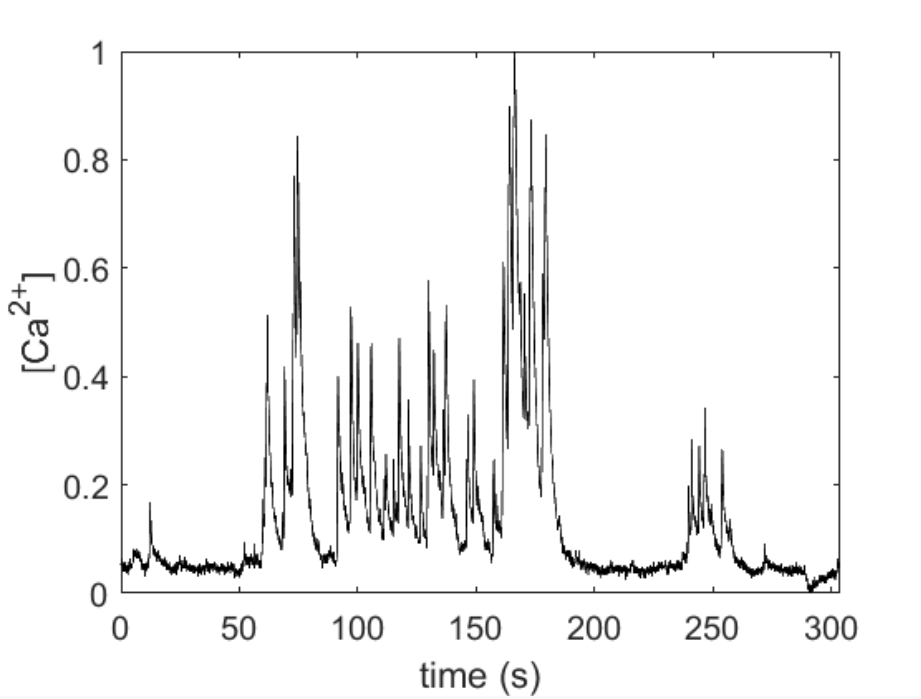
The GECO group

Genetics of Cognition (GECO)

- Held by Dr. Francesco Papaleo
- Main objective: uncover the mechanisms underlying cognitive and social alterations
- Empolyed methods: *in vivo* studies on mice brain activity, (electrophysiology, calcium imaging ...)

Intracellular calcium dynamics

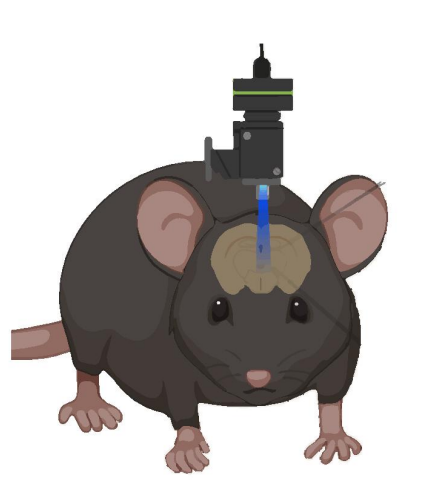
- Neurons show *rapid* and *heavy* changes in the values of their intracellular concentration of Ca^{2+}
- The neuron is defined as *active* in correspondence to the peaks in the calcium concentration



Microendoscopic calcium imaging

Te **Microendoscopic calcium imaging** technique consists in the following steps:

1. Implant of *miniscopes* in the brin region of interest of mice
2. Injection of a virus carrying the **GCaMP** protein
3. Performance of the behavioural task
4. Collection of the video recordings of the occurred fluorescence activity in single neurons
5. Pre-processing and data analysis



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