IDP: Neural Data Analysis in the Bat Auditory Cortex

In this project, you will work with high-density **Neuropixel recordings** from the auditory cortex of bats. During the experiments, echolocation calls were presented to the animal while neural activity was recorded from the **posterior dorsal field (PDF)**, a brain area specialized in **delay-tuned auditory processing** in echolocating bats.

Your task will be to develop a complete **analysis pipeline** for these recordings. This includes reading and managing large datasets (many short trial files), aligning neural data with auditory stimuli, organizing metadata, and characterizing **delay-tuning properties** of individual neurons.

You will work mainly in **MATLAB**, though basic **Python** knowledge is beneficial, as spike sorting is performed using the **Kilosort** framework. The goal is to create a clean, reproducible workflow that allows the full analysis of an entire recording session.

Skills required:

- Interest in neuroscience and neural data analysis
- MATLAB programming (data handling, visualization, signal analysis)
- Basic Python (for integration with Kilosort)
- Familiarity with neural data structures or time-series analysis

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