

## **The Birds and the Beats: Perception of a Beat in an Avian Model**

### **Background:**

Beat perception is a complex cognitive skill that enables humans to “feel” the beat in music, and is an essential component of synchronization of behavior and dance. The mechanisms in the human brain that facilitate beat perception are not entirely understood, and have only been studied thus far using non-invasive techniques. Some animals, such as songbirds, also seem to be able to detect a beat in rhythms, though this has never been formally tested independent of motor synchronization.

**Methods:** An operant experiment is used to assess if European starlings, a type of songbird, are capable of categorizing auditory rhythms on the basis of whether or not a beat is perceived. Naturalistic test stimuli are generated using temporal features similar to those present in birdsong.

**Results:** This is a preliminary proposal and data collection for the experiment is still in progress as of March.

**Discussion & Conclusion:** Future research is warranted into structures in the avian brain implicated in beat perception, as well as interspecific variation among songbirds and birds in general. An animal model will allow use of techniques that are prohibited in testing of human subjects, such as lesions or developmental manipulations.

**Interdisciplinary Reflection:** Methodology has been adapted from cognitive studies of beat perception in infants and adult humans in order to evaluate a comparable phenomenon in an avian model. Performance on the task is ultimately compared across songbird and human subjects.