

Building a better mouse-net: Constructing a massive, labeled mouse vocalization data set and using it to train a deep, convolutional neural network for automatic mouse vocalization detection

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The student researchers will work to continue last Summer's SRP efforts to analyze upwards of four Terabytes of sound data collected by Dr. Schenk and her collaborators over the last 10 years. Using these data, the students will build and train a deep, convolutional neural network (CNN) for the detection of mouse ultrasonic vocalizations (USVs) in sound data. Currently, USVs in these data, called calls, have been detected using detection and analysis code that Dr. Schenk's lab has written. The students will work to verify these detections, and then these verified USVs will serve as the training and validation sets for training a CNN. The ultimate goal of this project is to build a CNN that will outperform DeepSqueak[1], which is the neural network built for USV detection that was evaluated during SRP 2020.

