

## USING MACHINE LEARNING TO CLASSIFY BURST SIGNALS AND GLITCHES IN LISA DATA

The LISA detector will be sensitive to gravitational waves in the millihertz band, and this new range could bring with it our first observations of burst gravitational wave events. There are models for some possible astrophysical burst sources, but the exciting thing about having a new instrument is the possibility of detecting burst sources we don't expect. Glitches in the LISA apparatus may resemble these burst events by chance, and so it is important to be able to differentiate between the signals we measure from astrophysical events and any type of glitch. We developed a neural network to classify simulated glitches and burst events in LISA's TDI channels. We trained the neural network on identical glitch and gravitational wave burst morphologies, which is the case where confusion between the two classes will be most likely. This meant the neural network had to learn general differences between how the two different classes propagate around the LISA detector, rather than just learning different waveforms for each class.