Artistic Statement

Our project uses technology and music because technology can reach a wide audience and music reaches people’s hearts. Our animation includes an EKG from someone with Coronary Artery Disease (CAD) during a symptomatic episode and a color-changing DNA strand representing the variant of the gene associated with CAD. We created the saxophone line from the EKG values (using some math). Our project incorporates jazz because of its African American roots with a jazzy motif symbolizing the gene. We hope *Variations on a Gene* raises awareness of the genetic component of CAD and the need for further research in this area.

Technique Statement

We selected an EKG from the Long-Term ST Database on Physionet and downloaded it as a .mat file. We loaded it in Python, converted it to a NumPy array, and visualized it with matplotlib. We took a five-second segment of the EKG and removed extreme values, created fourteen bins, and binned the EKG. We then mapped the bins to notes and printed them. We recorded the notes using MIDI, composed a motif, wrote chords to make the song fuller, and added effects. We created the animation using p5.js and the rest of the website using jQuery, HTML5, and CSS3.