Decoding the Heart
2nd Place

Ishani DasGupta
Computing Science
Doctorate program
Image location: At my desk/workplace

Image Description

The image portrays the synergistic relation between the two main aspects of my research - medical image analysis and coding strategies. I dynamically engage with both, symbolized by the reflections seen within the frames. The aim is to efficiently and accurately identify the left ventricle (LV) from 3D heart ultrasound (echocardiography) images.

By examining heart images, I am developing a machine learning (ML) assisted automated system that can efficiently and accurately locate the LV and analyze heart function. Working with cardiologists at the University Hospital, I strive to improve the efficiency of identifying heart diseases. I design, code, and train neural networks that continuously learn the principal features in these heart images. Once the trained ML model has generated its predicted outputs, I use medical imaging software to view, examine, and compare these ML outputs with the expert LV identification.

In my research, the fundamental interplay between these two domains is essential for advancing the understanding and capabilities of cardiovascular imaging.

Image Creation

I shot this photo on a Nikon D5300 camera, with a Nikon AF-P DX NIKKOR 18-55mm f/3.5-5.6G VR lens.

The main objective was to capture the dual nature of my research - coding and image processing. I thought about how to portray both these in a single image, and I came up with the idea of using the reflections in the frames of a pair of glasses. The right side of the photo shows lines of code commonly used for ML coding. The left side shows a human heart with the left ventricle (LV) marked with green lines for reference.

The initial photography involved the camera, a tripod, my laptop to reflect the screen and some external lighting. After the shot, I used Adobe Photoshop for minor colour corrections and frame adjustments.