Problem 3.

3. (10%) Briefly describe how structured light 3D surface imaging works.

Here in the diagram below two known patterns of grayscale column images are similar except one is phase shifted in relation to the other. Now, both are projected sequentially to the object. The deformation of the patter helps us to topologically map distances of the object correctly, helping us reconstruct the shape/

A picture containing diagram

Description automatically generated

Problem 5.

5. (30%) Transient image reconstruction using MATLAB. Download the dataset and code from Transient imaging with SPADS link, choose one dataset, and use MATLAB (demo code is provided and demonstrated during the class) to reconstruct the transient images. Try different PSF options for reconstruction and see which is better.