Dept. o	f Computer	Science
Punjab	University	

CS570 Computer Vision Fall 2021

Quiz 4

Name:	D - 11 M1
Name:	Roll Number:

The sum-of-squared differences (SSD) in an arbitrary direction \mathbf{d} within an image patch is given by

$$SSD(\mathbf{d}) = \mathbf{d}^T \mathbf{A} \mathbf{d}$$

where **A** is a symmetric, positive definite 2×2 matrix called the structure tensor.

- 1. (5 points) Show that the SSD in the direction of any eigenvector of \mathbf{A} is the corresponding eigenvalue.
- 2. (5 points) Why is $\det(\mathbf{A}) = \lambda_{\text{large}} \lambda_{\text{small}}$ a good indicator of corner pixels?