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1. **Explain the notion of an Inverse Problem and how computer vision can be regarded thereby in a formal sense as inverse graphics**
2. **Why are many problems in computer vision ill-posed? In general, what metaphysical assumptions may be invoked by a vision algorithm in order to make an inference task well-posed, and thereby make computations that would otherwise be impossible, possible?**
3. **Contrast the use of linear versus non-linear operators in computer vision, giving at least one example of each. What can linear operators accomplish, and what are their fundamental limitations? With non-linear operators, what heavy price must be paid and what are the potential benefits?**
4. **Using the second finite difference operator [-1, 2, -1] for edge detection in an image, show how the pixel values in the row of the image given below are changed by discrete convolution with this operator: [...,0, 0, 0, 0, 5, 5, 5, 5, 5, 0, 0, 0, 0, ...] Explain what modifications to your approach would be required if**
   (a) **The filter kernel were asymmetric**
   (b) **The filtering operation were applied to the whole row of the image - how do you treat the first and second pixels in the row?**
5.
   (a) **Explain the operation of the 2D Fourier Transform and its applications in computer vision. Construct examples to aid your answer.**
   (b) **Compare and contrast the 2D Fourier Transform with the 2D wavelet transform.**