

STEM Games Day 3

1 Introduction

Today you will receive descriptions of several vectors convolved with a kernel and with different amounts of noise added. Your task will be to recreate the original signals as well as you can using the skills learned in last two days. The vectors are convolved with the kernel described in file `kernel1.txt`.

2 Tasks

Reconstruct the following vectors. Their noisy convolved variants can be found in files *FinalVector1.txt* to *FinalVector5.txt*.

1. The signal is a smooth function with a single large value added to it in a single point
2. The signal consists of 17 blocks of 3 points. Each block can be either a 0 or a 1. This is a simulation of bar code scanning.
3. The signal is a smooth function with large values added to it in two points that are no more than 5 away from each other. The same value is added to both points.
4. The signal is a piecewise linear function,
5. The signal is a function that is symmetric around the midpoint of the vector.