

Bit Reconstruction

Suppose you have a sequence b_1, \dots, b_N of numbers where each $b_i = \pm 1$. Define a new sequence of numbers c_1, \dots, c_N by

$$c_i = \sum_{k=1}^N b_k b_{k+i},$$

where we let $b_j = b_{j-N}$ if $j > N$. Can you recover the b_i from the c_i ?