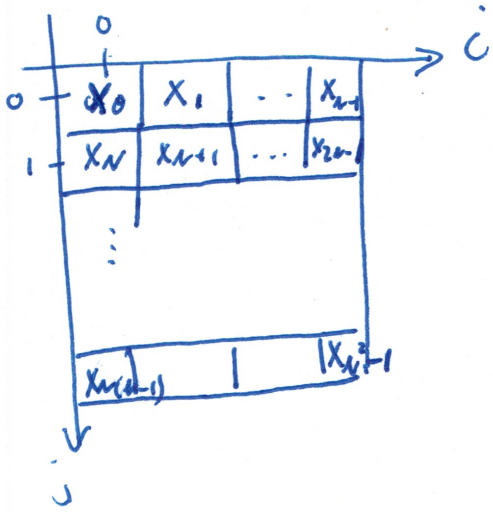
2-D



$$I(i,j) = \{X_{i+N\cdot j}\} \qquad I = \left\{ X_{i+Nj} \right\}_{i,j=0}^{N-1}$$

Projections:

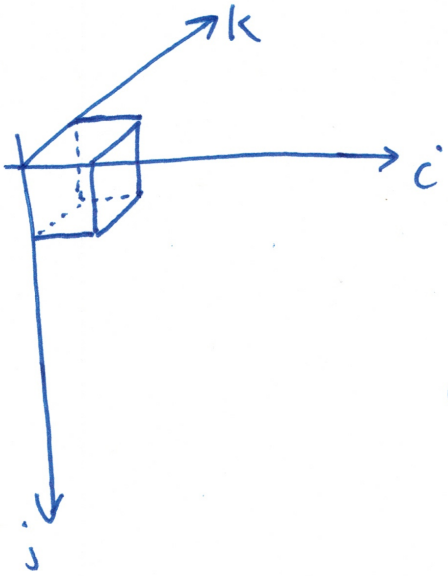
in $\vec{i}$ direction : $RowSum(j) = \sum_{i=0}^{N-1} I(i,j) = \boxed{\sum_{i=0}^{N-1} \left(X_{i+N\cdot j}\right)}$

in $\vec{j}$ direction : $ColSum(i) = \boxed{\sum_{j=0}^{N} \left(X_{i+Nj}\right)}$

$2N$ equations

$\{X_{i+Nj}\}_{i,j=0}^{N-1}$ - N^2 unknowns

3-D



each Voxel indexed by $\{i,j,k\}_{0}^{N-1}$

Indexing of the Voxels:

$$V(i,j,k) = X_{i+N\cdot j+N^2\cdot k}$$

Projections:

$$I_1(i,j) = \text{in } \vec{k} \text{ direction} = \sum_{k=0}^{N-1} X_{i+N\cdot j+N^2 k}$$

$$I_2(i,k) = \text{in } \vec{j} \text{ direction} = \sum_{j=0}^{N-1} X_{i+Nj+N^2 k}$$

$$I_3(j,k) = \text{in } \vec{i} \text{ direction} = \sum_{i=0}^{N-1} X_{i+Nj+N^2 k}$$

$3\cdot N^2$ equations

$\left\{X_{i+Nj+N^2k}\right\}_{i,j,k=0}^{N-1}$ — N^3 unknowns