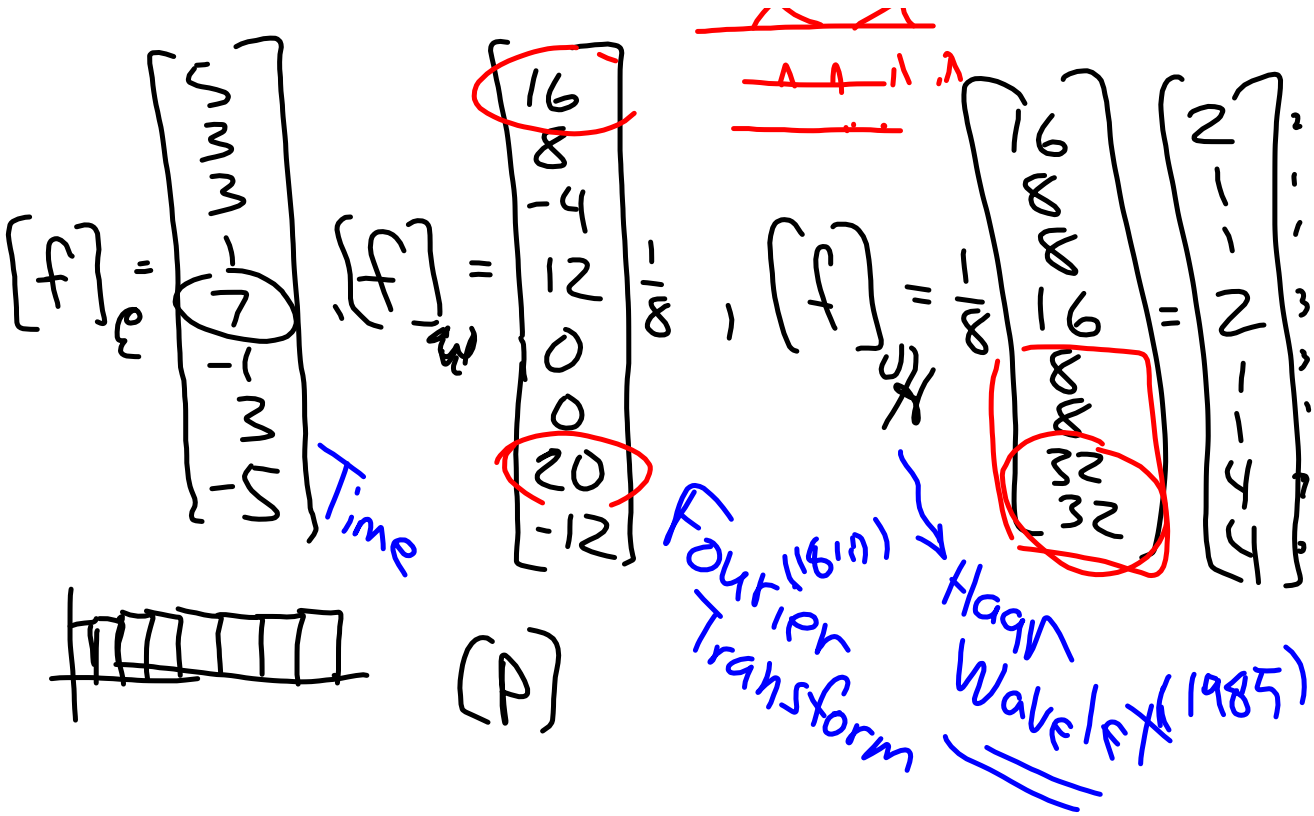
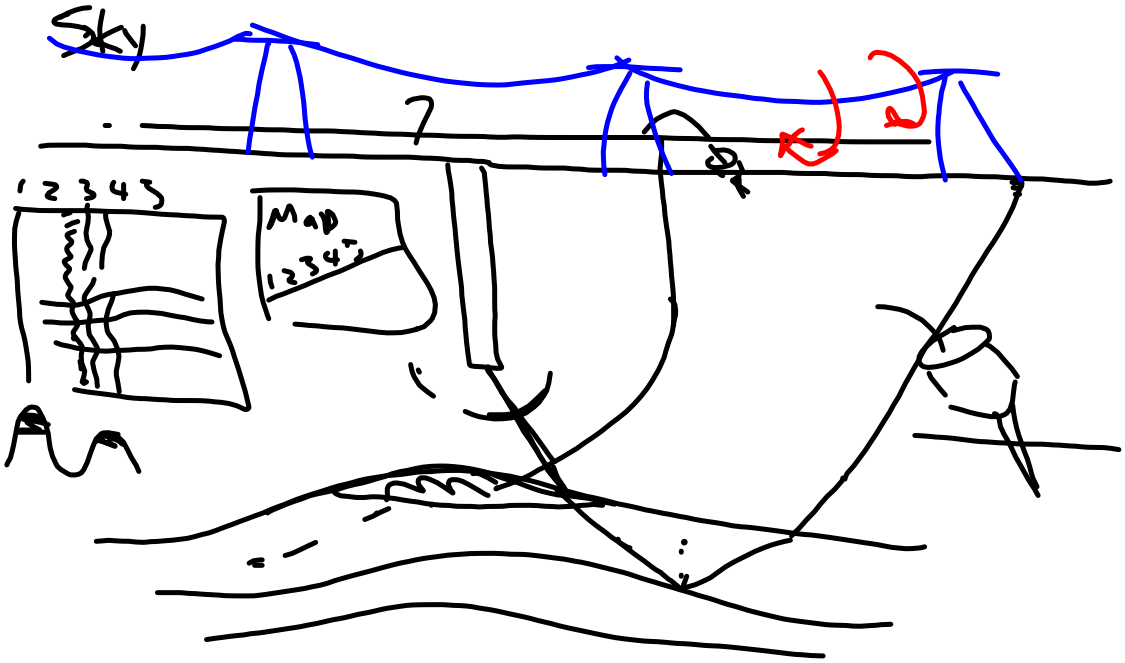
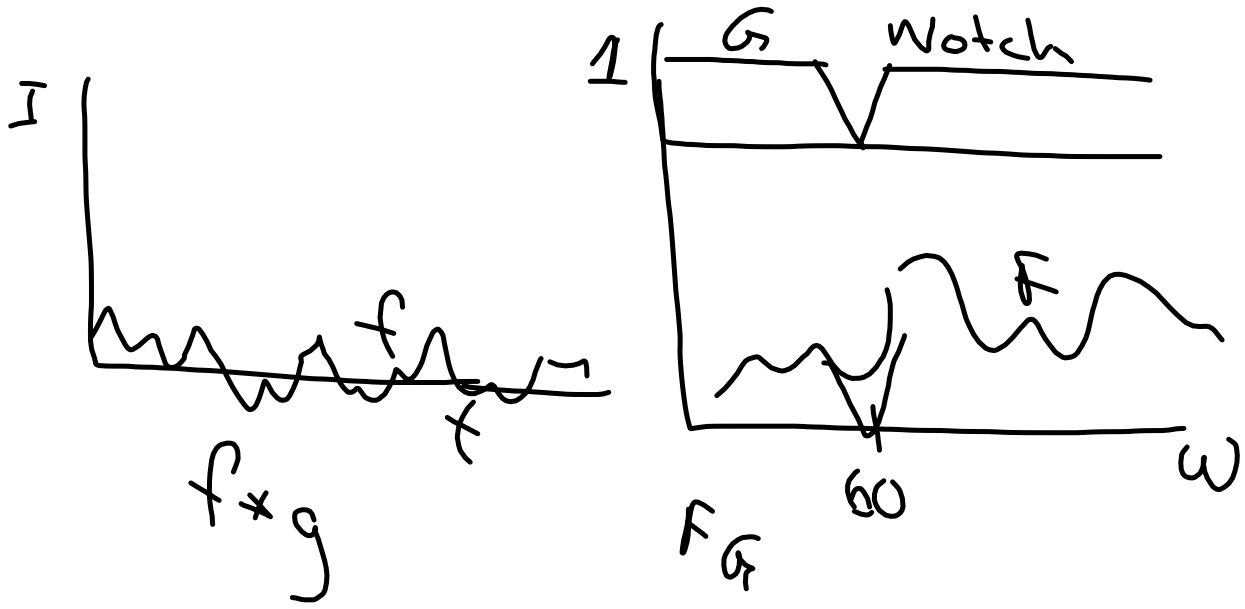
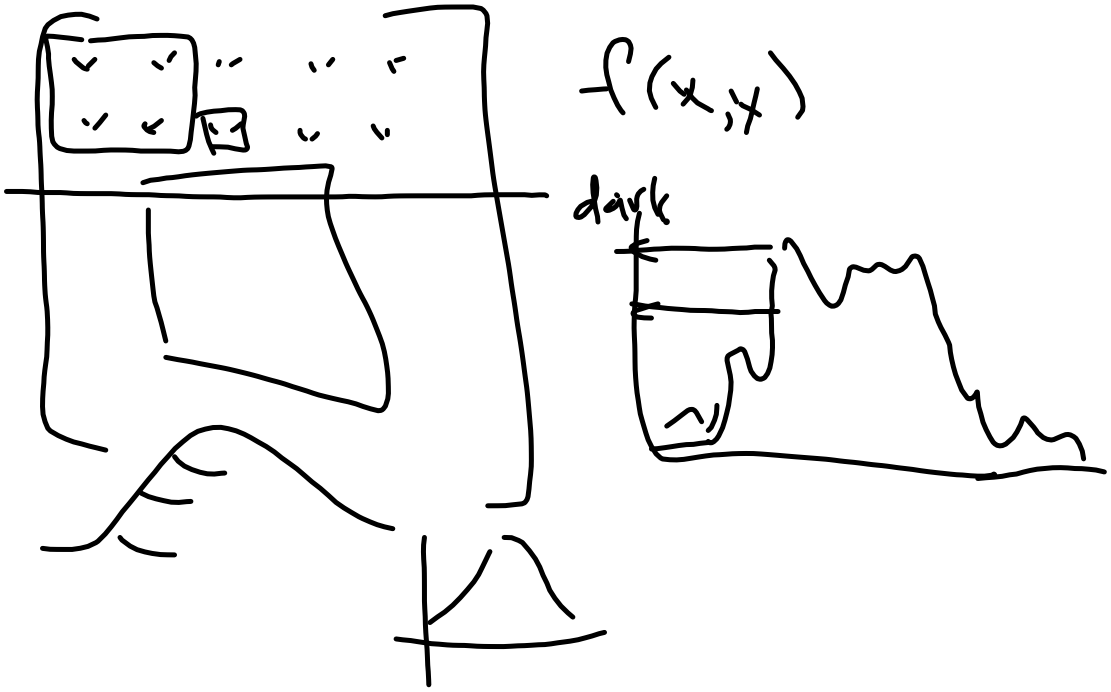
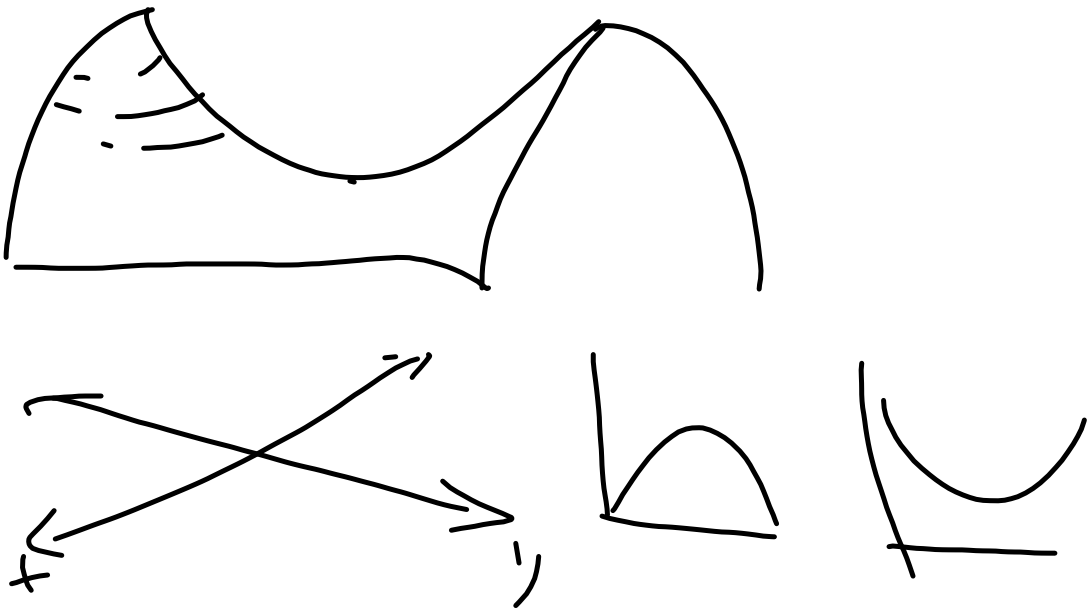

[f]_t = 5 3 3 1 7 -1 3 -5
Time
[f]_W = 1/8 16 8 -4 12 0 0 20 -12
Fourier Transform
[f]_H = 1/8 16 8 8 16 8 8 32 32 = 2 -1 -1 2 -1 -1 4 4
Haar Wavelet (1985)


Sky
1 2 3 4 5
Map
1 2 3 4


1
f
t
f*g
1
G
Notch
F
60
ω
FG


f(x,y)
dark



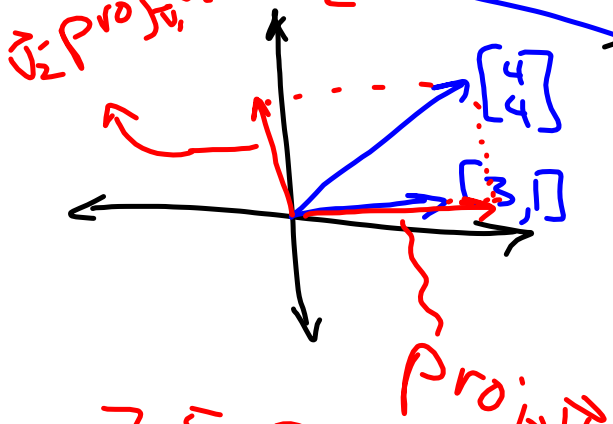
Gram-Schmidt Orthogalization

Idea: Take a basis in an inner product space, and create an orthogonal basis from it.

$\mathcal{B} = \{\vec{v}_1, \vec{v}_2, \vec{v}_3, \ldots, \vec{v}_n\}$

$= \{\vec{w}_1, \vec{w}_2, \ldots, \vec{w}_n\}$

Paul Halmos



$7 - 5 = 2$

$5 + 2 = 7$

$B = \left\{ \begin{bmatrix}3\\1\end{bmatrix}, \begin{bmatrix}4\\4\end{bmatrix} \right\}$

$C = \left\{ \begin{bmatrix}3\\1\end{bmatrix}, \right\}$

$A^T A = \begin{bmatrix}8 & 7\\ 7 & 9\end{bmatrix}$

$\int \sec^2 x = \tan x$

$\int \sec x \tan x = \sec x$