

Example 3: Online learning by hand (The letters T, G, F)

Contents

- Set up the data and plot the letters.
- Set up the matrix X, T, and set the learning rate alpha.
- The main loop, Widrow-Hoff update using a random data selection.
- Plot the error.

Set up the data and plot the letters.

```
T1=[1 1 1 -1  
     -1 1 -1 -1  
     -1 1 -1 -1  
     -1 1 -1 -1];  
T2=[-1 1 1 1  
     -1 -1 1 -1  
     -1 -1 1 -1  
     -1 -1 1 -1];  
G1=[1 1 1 -1  
     1 -1 -1 -1  
     1 1 1 -1  
     1 1 1 -1];  
G2=[-1 1 1 1  
     -1 1 -1 -1  
     -1 1 1 1  
     -1 1 1 1];  
F1=[1 1 1 -1  
     1 1 -1 -1  
     1 -1 -1 -1  
     1 -1 -1 -1];  
F2=[-1 1 1 1  
     -1 1 1 -1  
     -1 1 -1 -1  
     -1 1 -1 -1];  
  
gg=colormap(gray);  
gg=gg(end:-1:1,:);  
  
subplot(2,3,1)  
imagesc(T1)  
colormap(gg)  
subplot(2,3,2)  
imagesc(G1)  
subplot(2,3,3)  
imagesc(F1)  
  
subplot(2,3,4)  
imagesc(T2)
```