Problem 1

late MLE	late MLE fit	c_a	c_v	sigma_a	sigma_v
sub 1	95.307829	3.2269964	1.93539812	1.3406119	1.33444916
sub 2	71.045391	2.9748061	2.0838684	1.22576434	0.77862192
sub 3	78.331701	2.8552776	2.159712	1.11882834	1.66172244
sub 4	75.686285	3.2819536	3.2417949	0.80678711	1.80015312
sub 5	67.343054	3.3008401	2.2271728	0.71344495	1.55407639

Problem 2

mu	sigma	d'12	d'45	slope	intrcpt
1.9152	1.8842	0.3456	1.8008	0.5307	1.0164

Problem 3.1
Likelihood P(x I left) = f(x I mu, sigma) = f(5 I 0, 10) = 0.035
Likelihood P(x I right) = f(x I mu, sigma) = f(5 I 20, 10) = 0.013
Prior P(left) = 0.25
Prior P(right) = 0.75
P(x I left) P(left) = 0.088
P(x I right) P(right) = 0.097
Cat will choose right

Problem 3.2

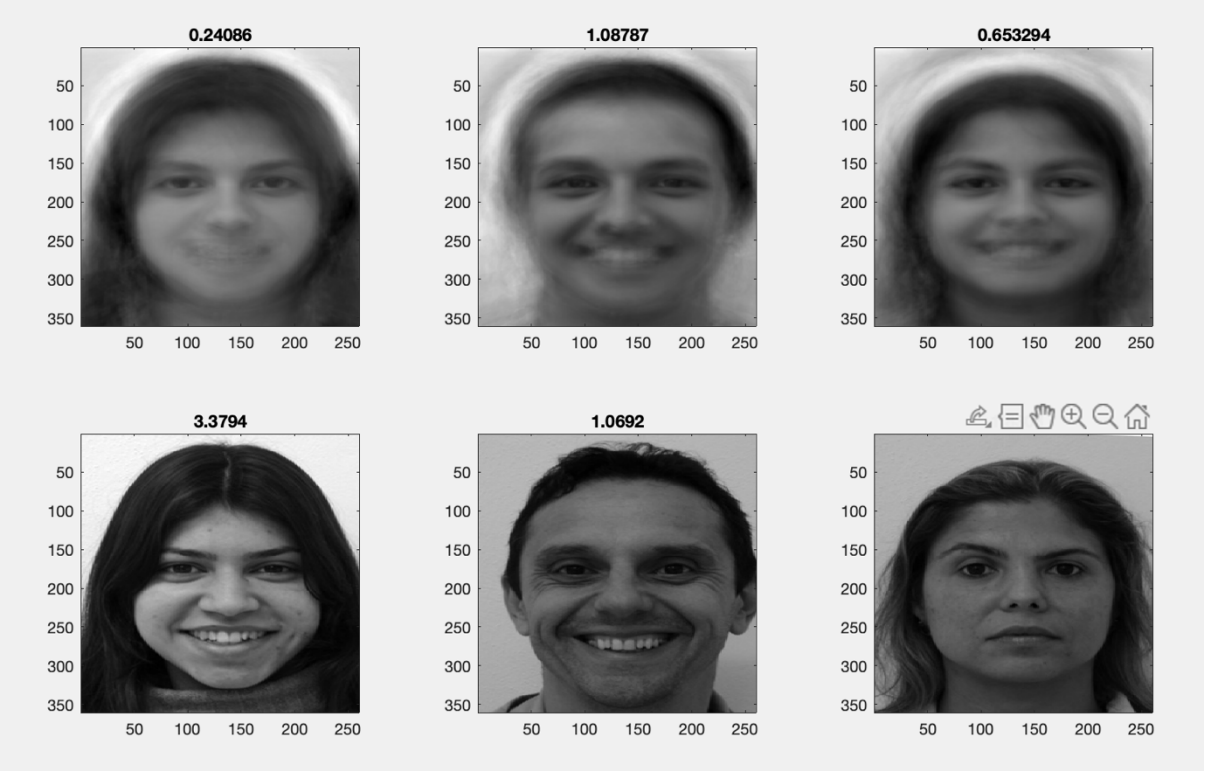
Calculate x_av from equation 2.11 in lecture notes
calculate sigma_av from equation 2.14 in lecture notes
proceed as above

post left	post right	Like Left	like right
0.599	0.401	9.63E-07	2.15E-07

Cat choose left

problem 4

See exam ExamSlides and videolecture week 13
reconstructions



synthetic images

$$x = \boldsymbol{i}^T \boldsymbol{w} + \delta$$

$$x = (\boldsymbol{i} + \Delta \boldsymbol{i})^T \boldsymbol{w} + \delta$$

$$\Delta \boldsymbol{i} = \alpha \boldsymbol{w}$$

$$x = (\boldsymbol{i} + \alpha \boldsymbol{w})^T \boldsymbol{w} + \delta$$