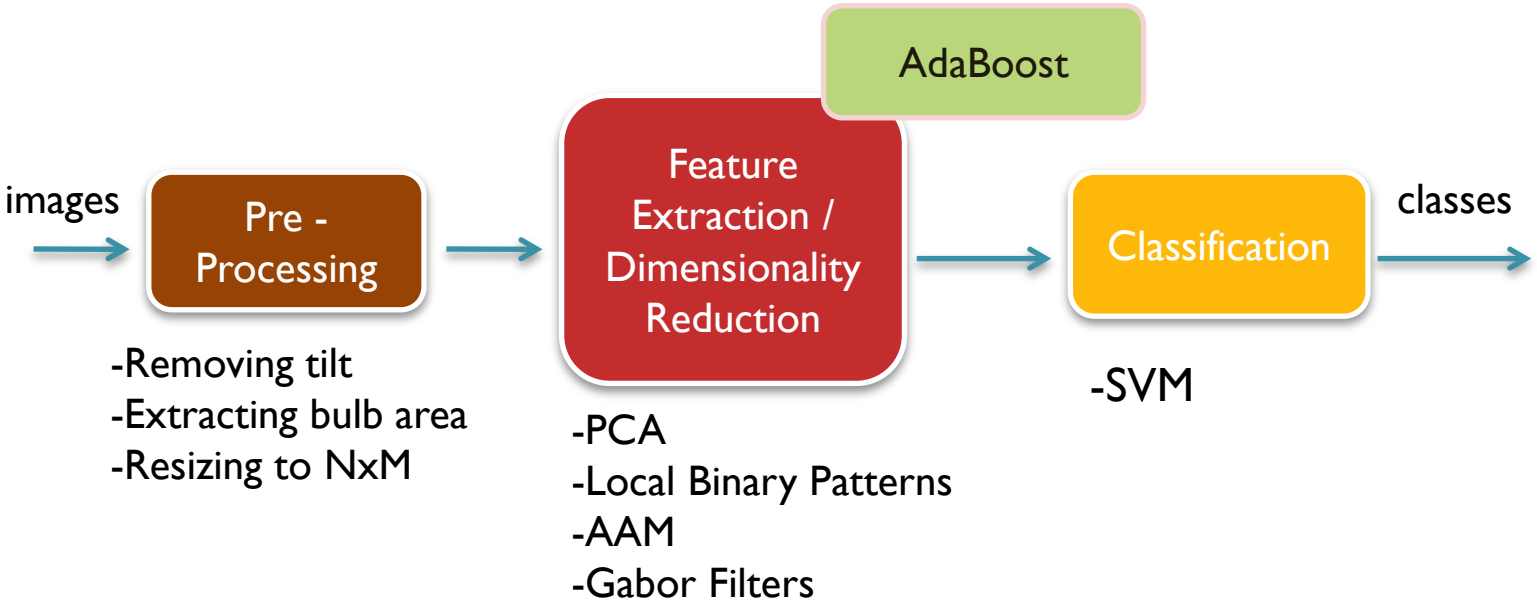
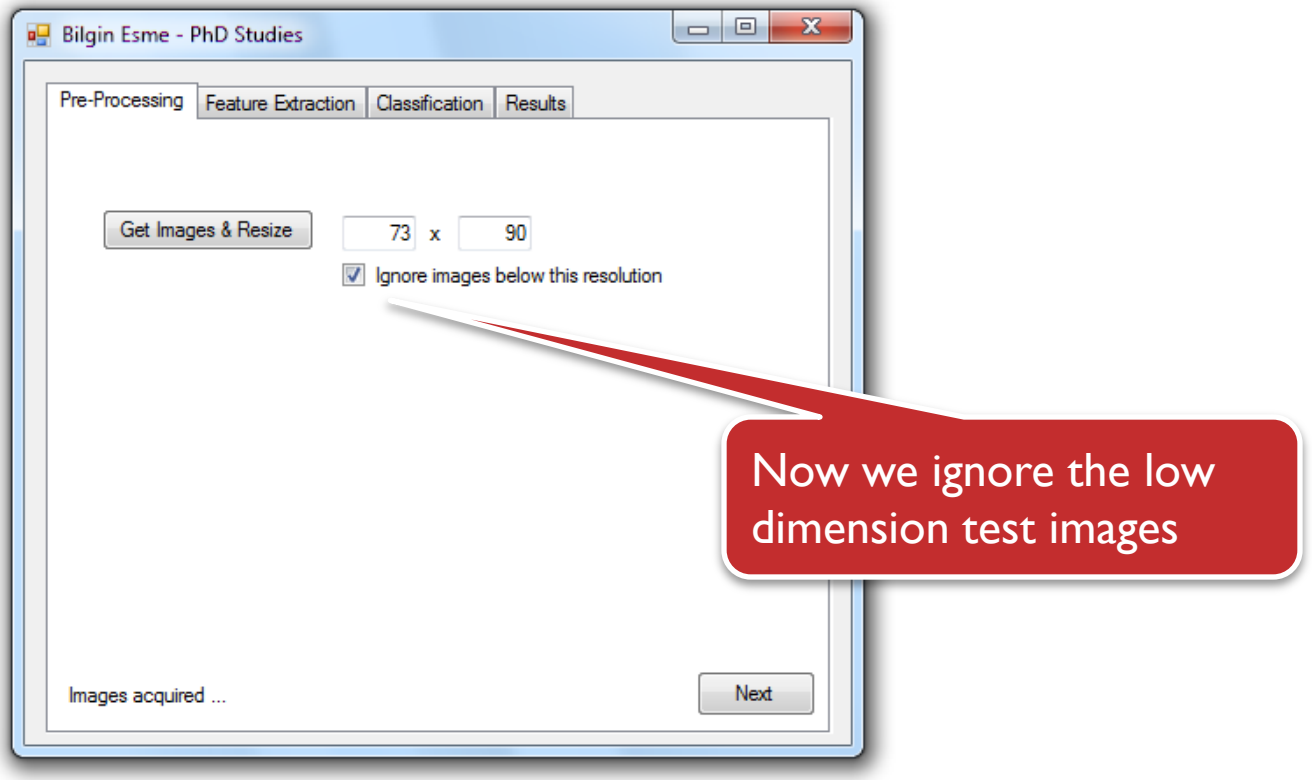
Age Estimation from Still Images

Bilgin Esme, April 2011

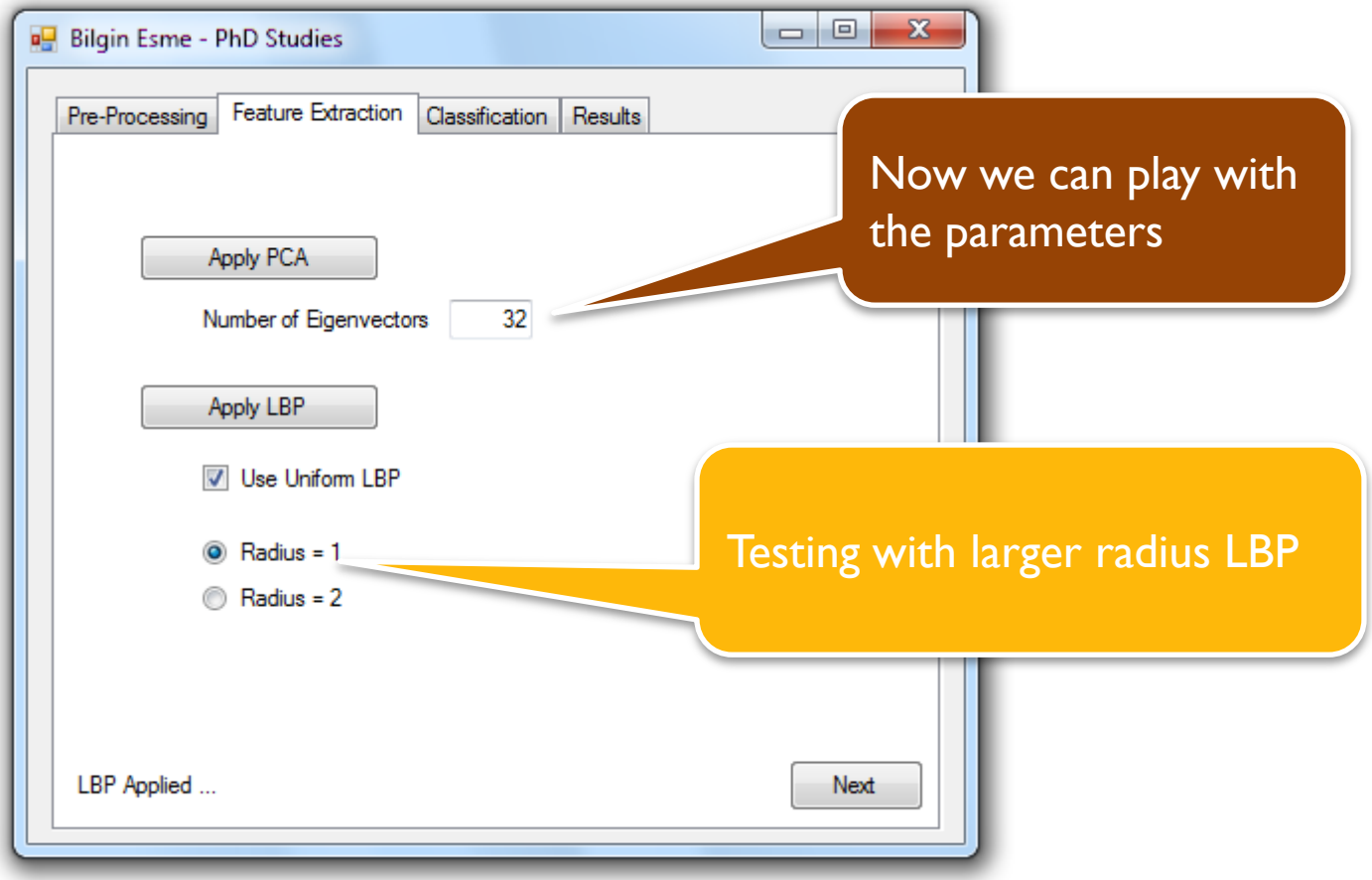
Overview


images
Pre - Processing
-Removing tilt
-Extracting bulb area
-Resizing to NxM
AdaBoost
Feature Extraction / Dimensionality Reduction
-PCA
-Local Binary Patterns
-AAM
-Gabor Filters
Classification
-SVM
classes

Pre-Processing

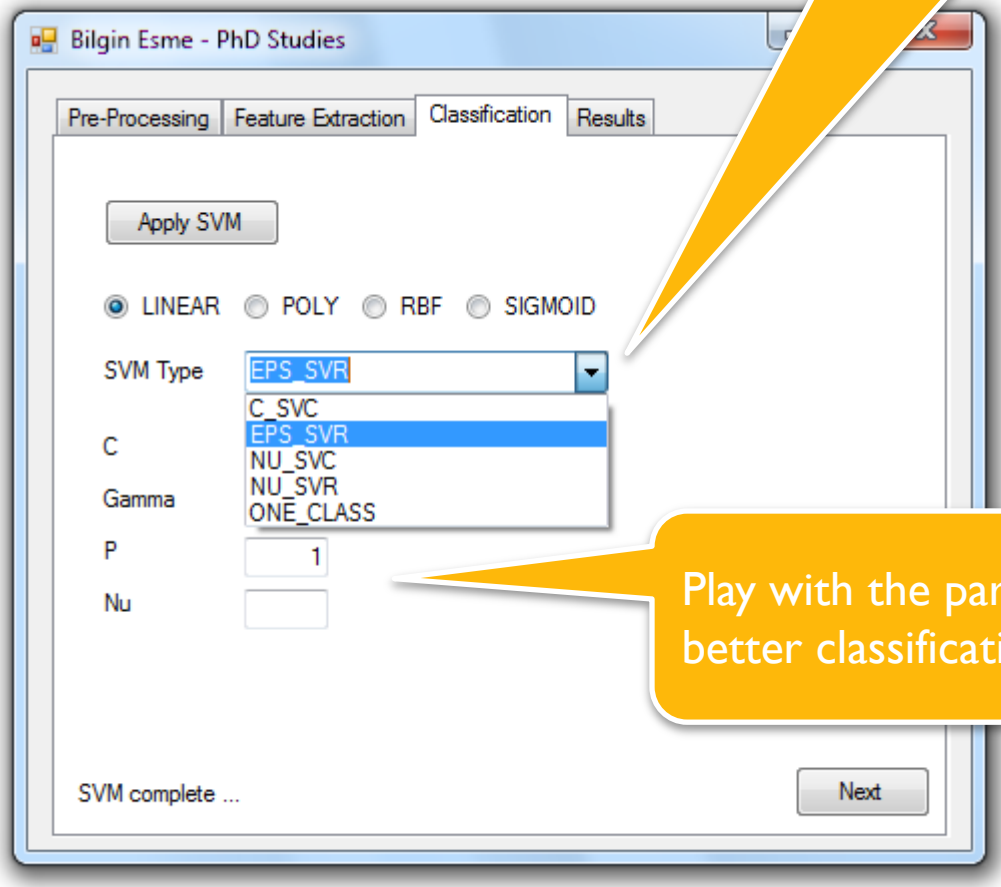


Feature Extraction



Classification

Classification vs. Regression



Play with the parameters for better classification results

Testing

- Only male samples are included
- Both classification and regression tested
- Different frame sizes for LBP tested
- Registering to a class is also an important decision

Some Results

	40	36	39	49	40	48	35	41	32	38	70	46	46	23	73	46	48	54	41
LBP	40	30	30	40	40	40	30	40	30	30	70	40	40	20	60	30	40	60	40
	35	41	47	50	39	41	38	47	35	39	63	48	55	25	54	41	46	58	47
PCA	40	30	30	20	40	30	40	30	40	20	70	30	40	30	30	40	60	30	40
	47	41	52	44	48	46	55	55	49	49	51	49	61	48	36	47	38	51	45

Real Age Values

Age Groups

SVR

Age Groups

SVR

Some Results

LBP	34	34	34	34	46	38	60	57	53	47	35	47	37	36	71	50	34	69	30	30	30	74
	30	30	30	30	40	40	30	50	60	50	30	30	30	30	30	50	40	60	30	30	30	60
	39	33	48	51	42	45	56	54	55	46	43	37	44	42	49	49	41	49	29	42	31	51
PCA	30	30	70	30	60	40	30	50	30	60	50	50	40	40	50	30	30	40	30	30	30	50
	53	53	49	50	38	51	46	61	44	27	42	44	48	48	54	42	39	59	40	33	42	40

Some Conclusions

- LBP seems to capture age information due to skin aging
- LBP outperforms PCA as database grows
- LBP outperforms PCA against "out of training" samples
- PCA seems to get some "age look" information
- Yet, more data is needed for a better conclusion

Next Steps

- For LBP, different window sizes and different shift values should be used together
- Decision to go on with “age groups” or “regression”
- Gabor still waiting …
- Non-linear feature mapping by Manifold Learning