

# Digital Signal Processing Homework 1

## Discrete Hidden Markov Model Implement

### Environment

```
OS: Ubuntu 16.04.5 LTS (GNU/Linux 4.15.0-36-generic x86_64)
Compiler: g++ (Ubuntu 5.4.0-6ubuntu1~16.04.10) 5.4.0 20160609
CPU: Intel(R) Xeon(R) CPU E5-1620 v3 @ 3.50GHz
RAM: 32G
```

### How to execute?

- Use the command `make` to compile executable file `train test accuracy`, use `make clean` to remove all compiled files.
- **Train:** `./train [iteration] [initial model file] [sequence file] [output file]`
- **Test:** `./test [model list] [sequence file] [output file]`
- **Compute Accuracy:** `./accuracy [predict file] [answer file] [output file]`

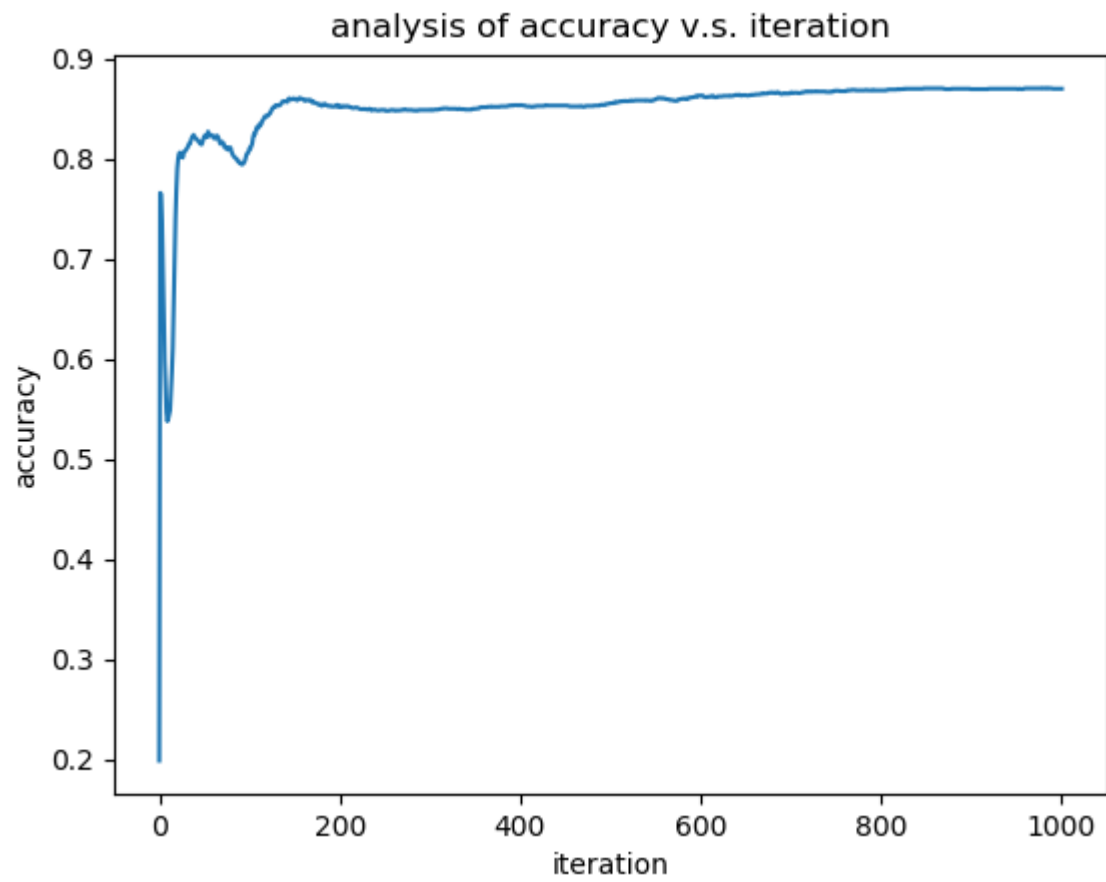
### Some Analysis

#### Relation between accuracy and iteration

iteration	accuracy
0	0.1992
1	0.7660
5	0.6484
10	0.5408
15	0.6104
20	0.7904
50	0.8228

iteration	accuracy
100	0.8104
150	0.8600
200	0.8524
300	0.8488
400	0.8536
500	0.8556
600	0.8632
700	0.8664
800	0.8684
900	0.8696
1000	0.8700

**visualize**



**log scale for iteration axis**

