

**ECE-497/BME-491: Applied Biomedical Signal Processing**  
**Laptop Day #9**  
Due at the end of class, January 25, 2007

Today we have the following goals

- Compute the means magnitude squared coherence for VT and VF signals
- Implement scatter diagram analysis

*At the end of class you should turn in four plots.*

1) Go to the class website and download *laptop9.m*.

2) Modify the program you wrote for homework 3 to compute the mean MSC between two signals. Try your algorithm on the data files (from homework 1) *pt1 vf.pa* and *pt1 vt.bi* and then on the files *pt2 vt.pa* and *pt2 vt.bi*. Use data from sample points from 1 to 511. These signals are all sampled at 125 Hz. You should get plots like those in Figures 1 and 4. You should have all six graphs on one page. *Turn in your plots.*

3) Modify *laptop9.m* to implement scatter diagram analysis. Specifically, you need to determine what goes in lines 69 and 70. If you have fixed the program correctly, and then you run *laptop8.m* with the commands

```
laptop8('pt1 vf.pa', 'pt1 vf.bi', 1, 511, 16, 20);  
laptop8('pt2 vt.pa', 'pt2 vt.bi', 1, 511, 16, 20);
```

You should get a figures very similar to those shown in Figures 3 and ??.

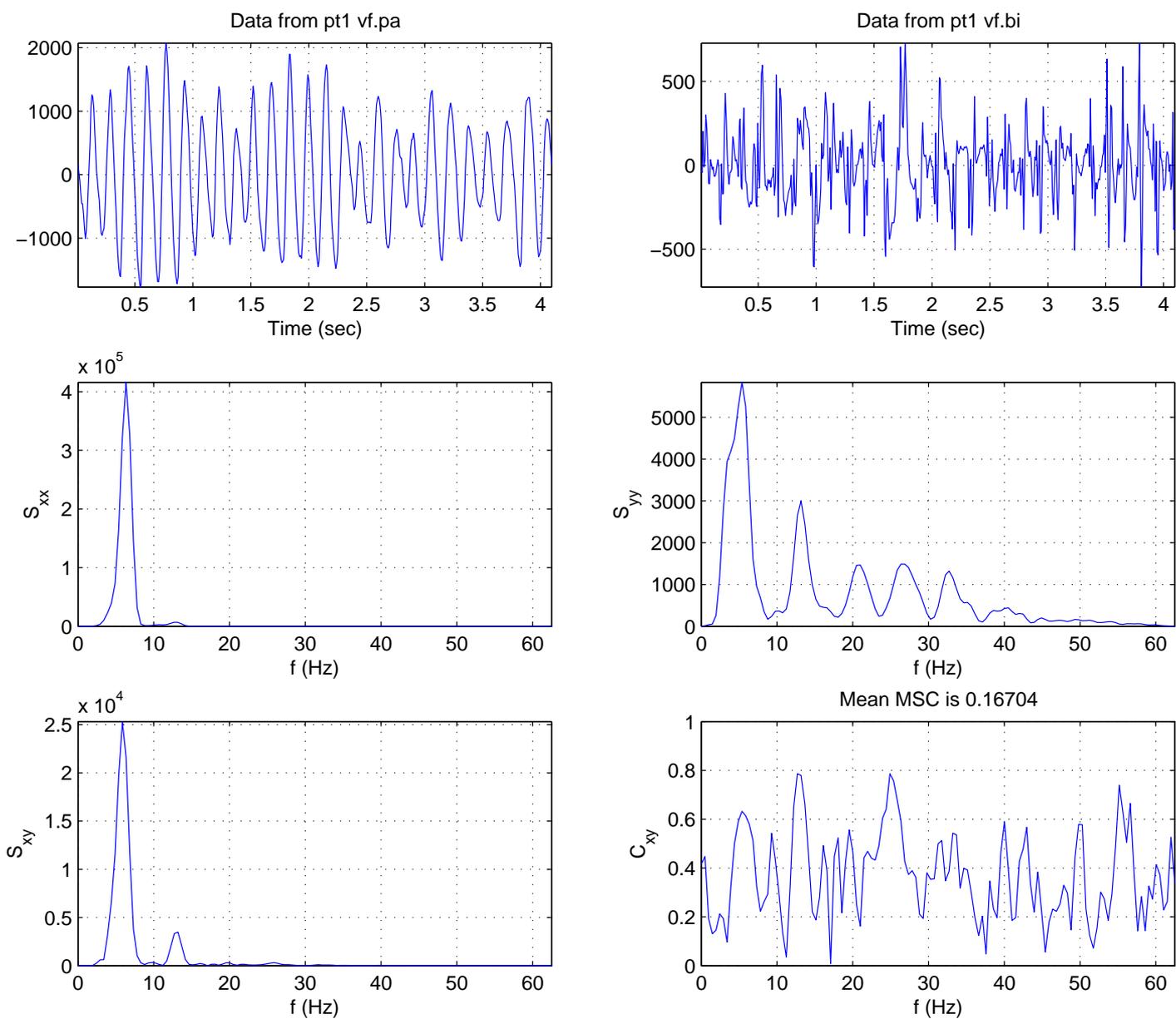


Figure 1: Mean MSC plots for patient 1.

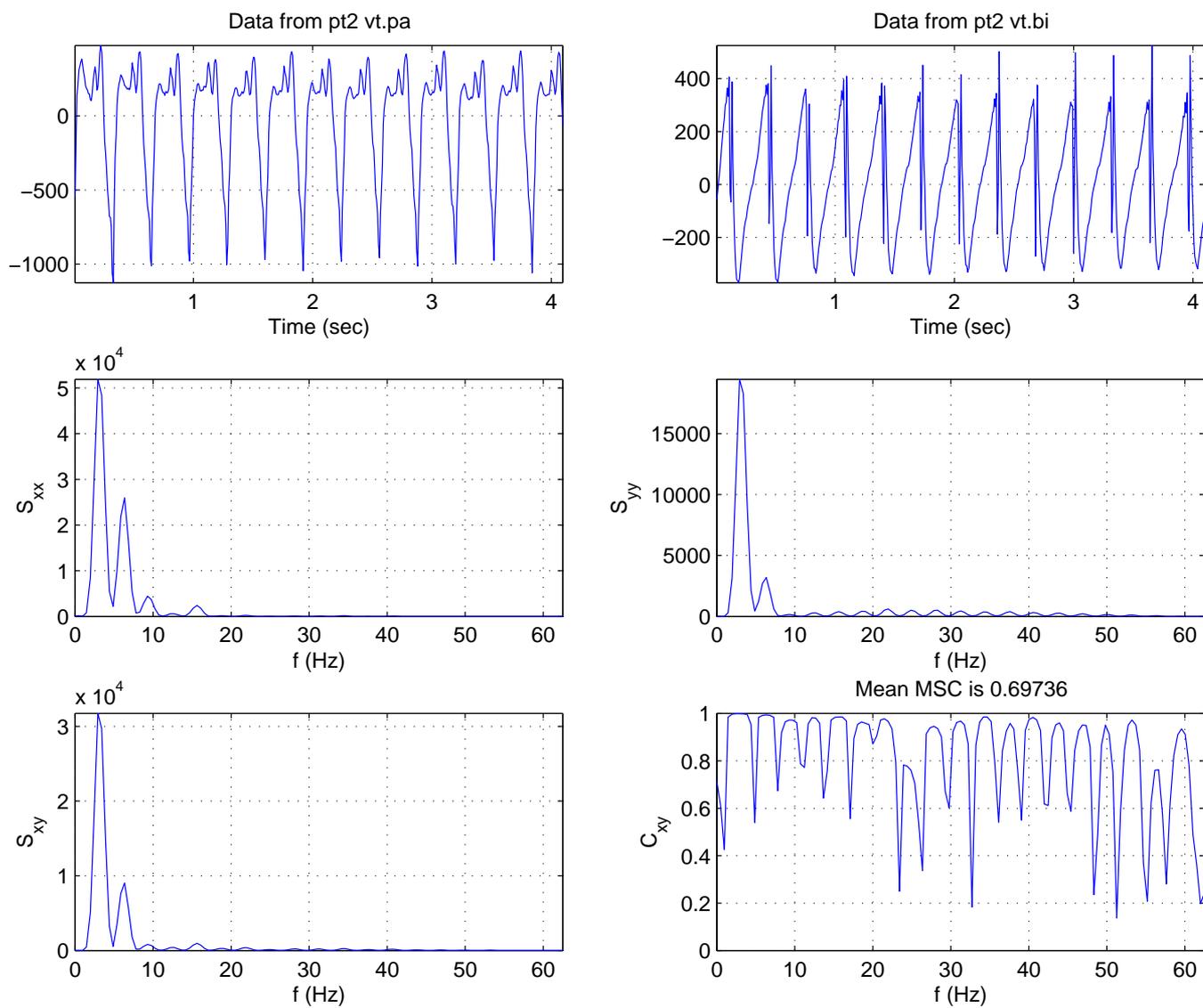


Figure 2: Mean MSC plots for patient 2.

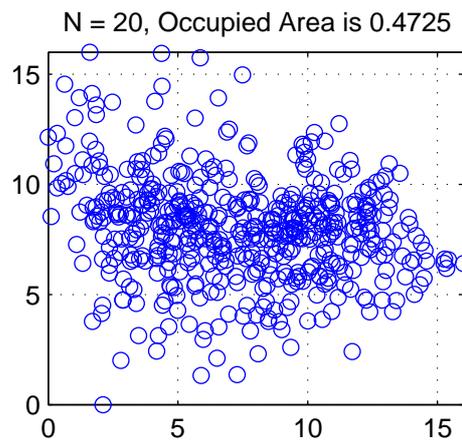
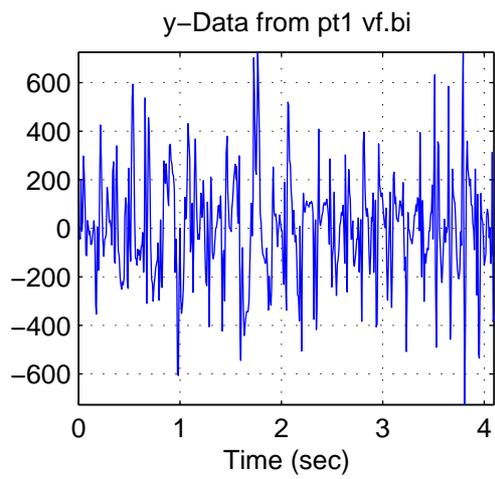
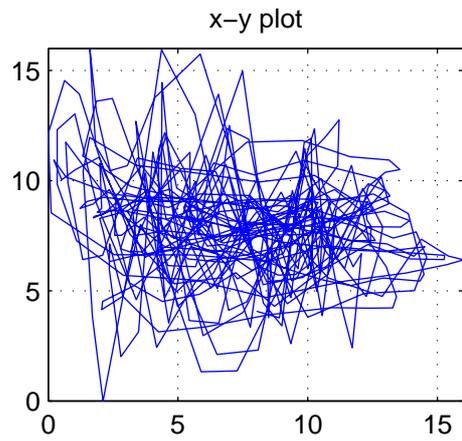
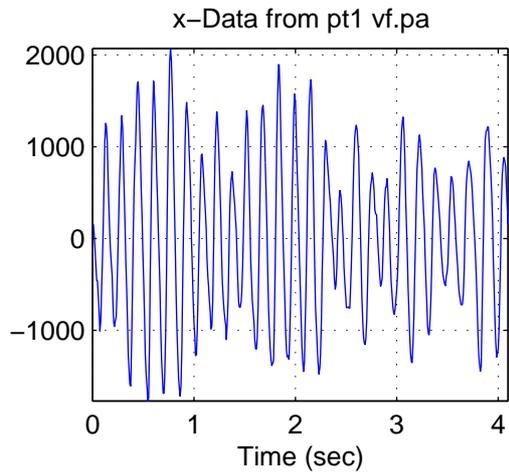


Figure 3: SDA plots for patient 1.

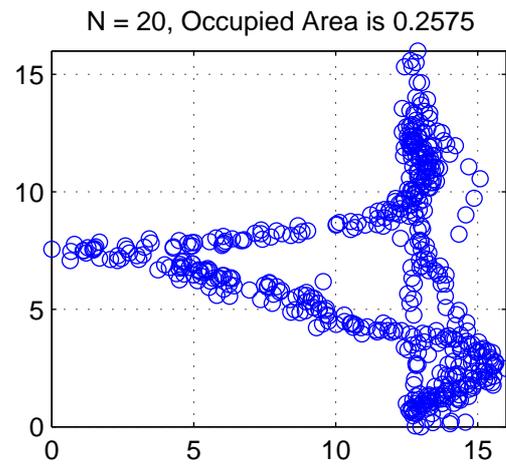
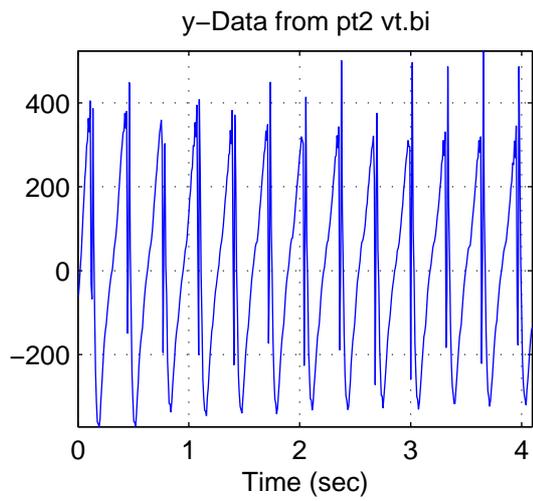
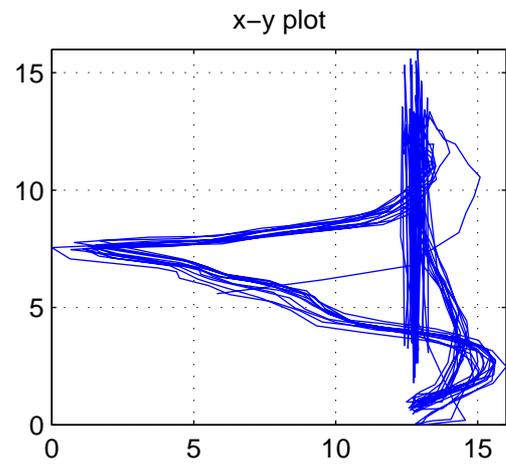
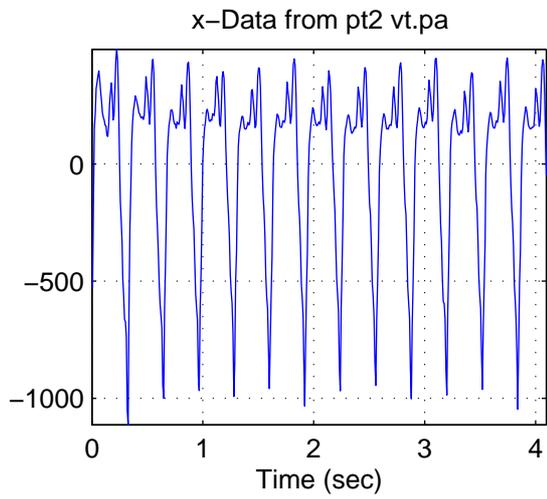


Figure 4: SDA plots for patient 2.