Classifier specific features

Based on the experimental results described int the GAD report in section 3, I noticed that different sets of features were fed to different classifiers; some correspond to the parameters I am currenly extracting, others are the mean and/or standard deviation of some of the parameters. These can easily be computed incrementally as data is being read and my next goal is to implement these calculations. Since the plan of my project is to implement first of all a J48 classifier, I will first focus on the features needed by these classifiers.

Generic attack detection

The GAD report mentions two J48 classifiers which have achieved good results in generic attack detection. One uses 16 features, the other uses 6:

J48 16	**J48 6**
min Doppler	y
σ Doppler	y
min valid satellites	y
min pseudorange	y
min signal over noise	y
σ valid satellites	y
σ signal over noise	
σ pseudorange	
max n. satellites changed	
avg. valid satellites	
avg. pseudorange	
avg. Doppler	
max signal over noise	
max carrier phase	
avg signal over noise	

Per attack detection

T2 Attack: no J48 mentioned

T2 Attack (Static Overpowered/Matched Power Time Push, scenarios 2,3,7,8)

J48 with 3 features

- max signal over noise
- avg. Doppler
- max carrier phase

T3 Attack (Static Matched Power Position Push, scenario 4)

J48 with three features

- max valid satellites
- min height from real pos.
- max amplitude of raw signal

NOTICE: maxima, minima, averages and standard deviations are computed incrementally over the entire program execution; maybe it is more appropriate to use limited buffers.