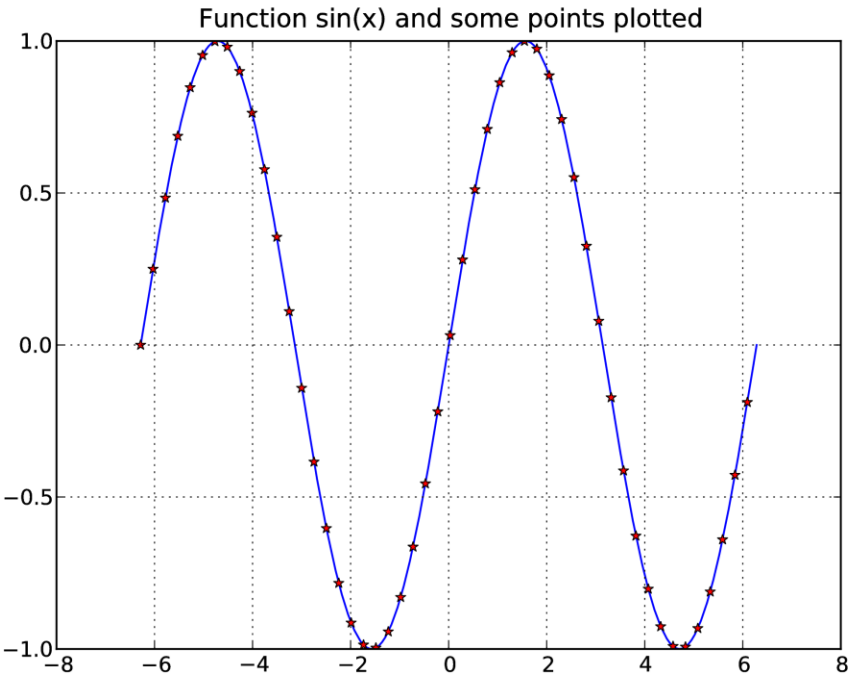
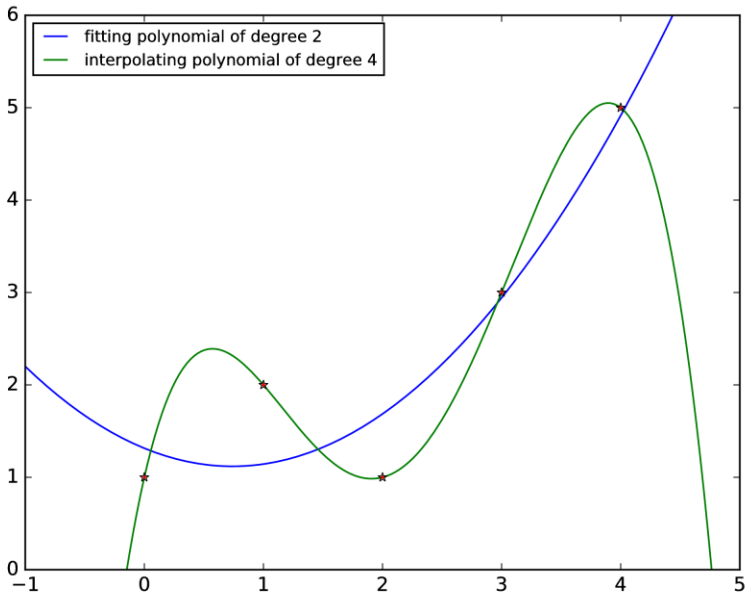
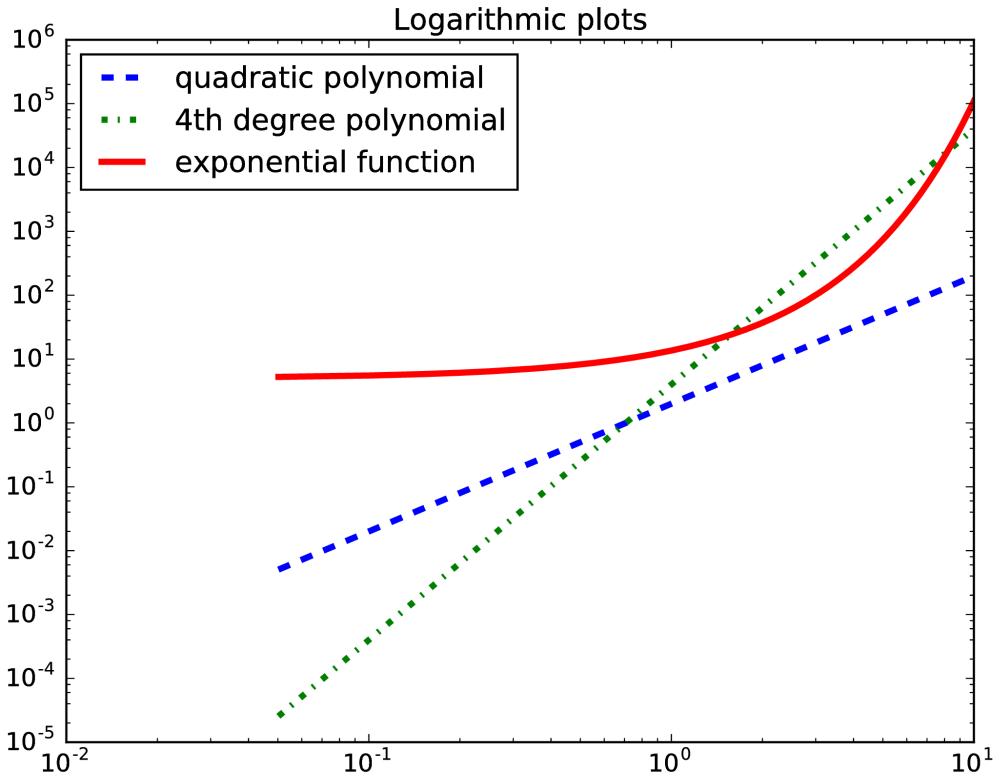
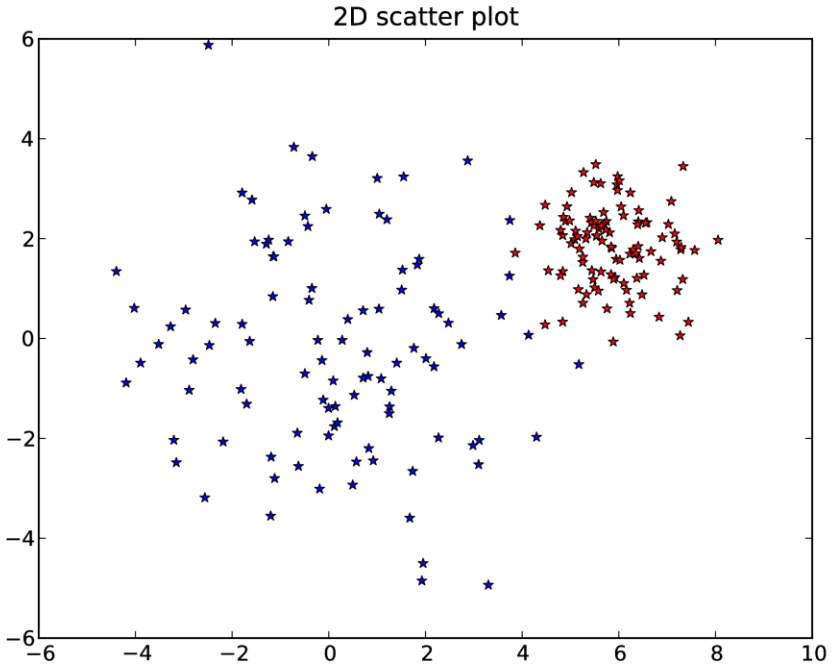
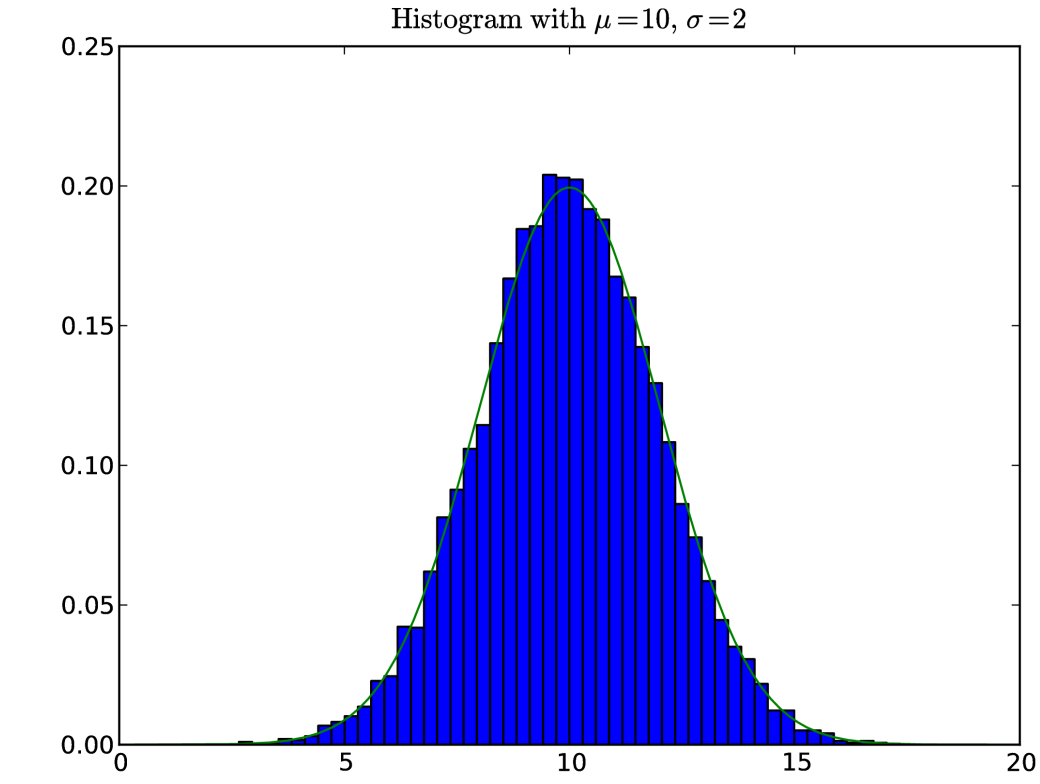
Chapter 6: Plotting

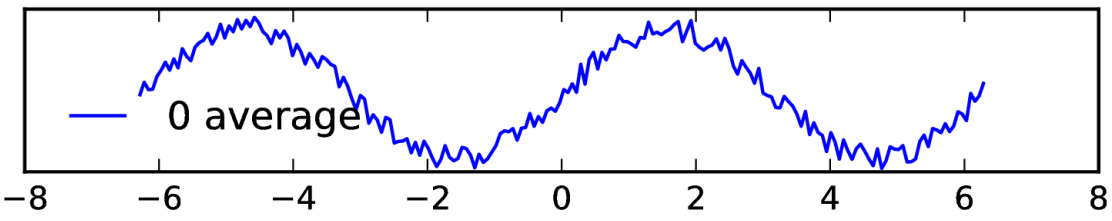


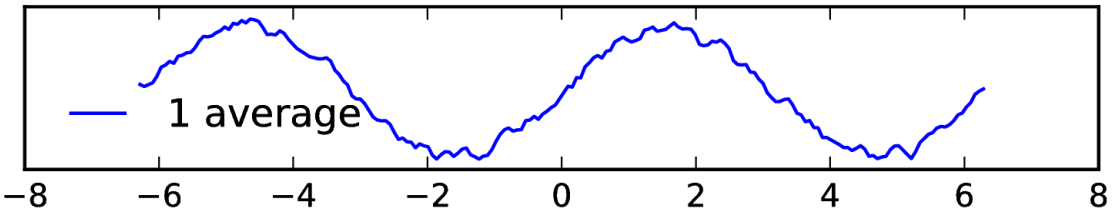


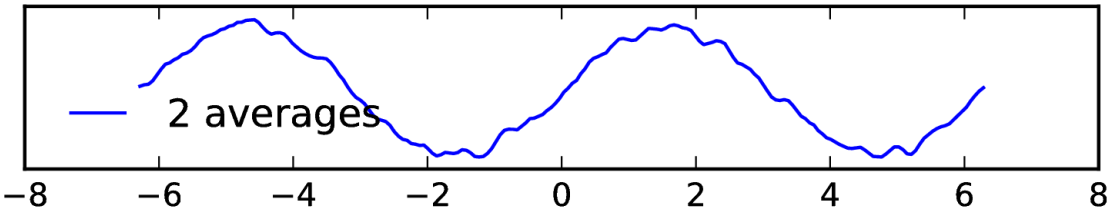

Logarithmic plots
quadratic polynomial
4th degree polynomial
exponential function
10^{6}
10^{5}
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-2}
10^{-1}
10^{0}
10^{1}

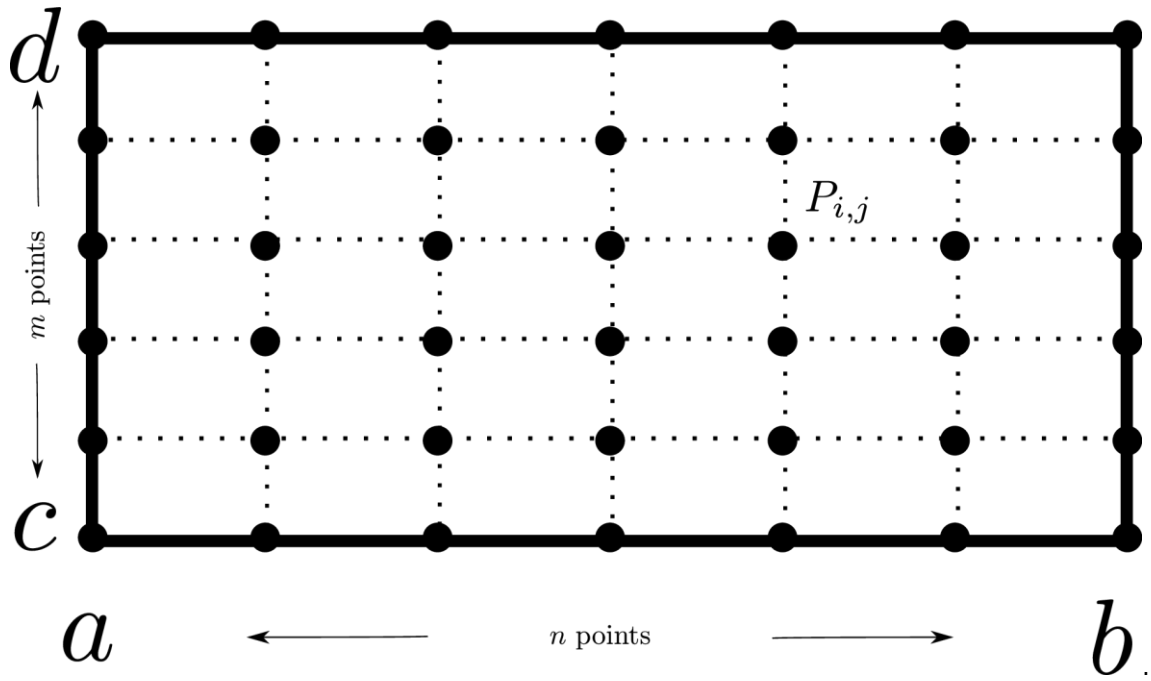

2D scatter plot
6
4
2
0
−2
−4
−6
−6
−4
−2
0
2
4
6
8
10

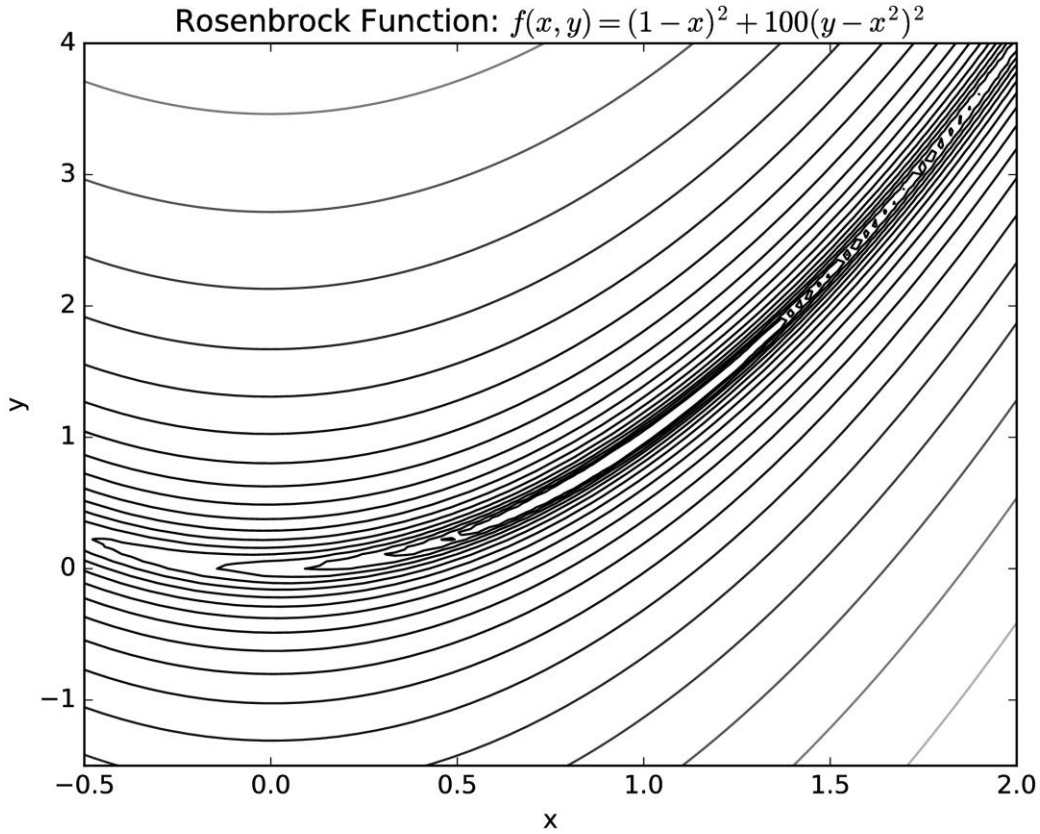

Histogram with $\mu=10$, $\sigma=2$
0.25
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20

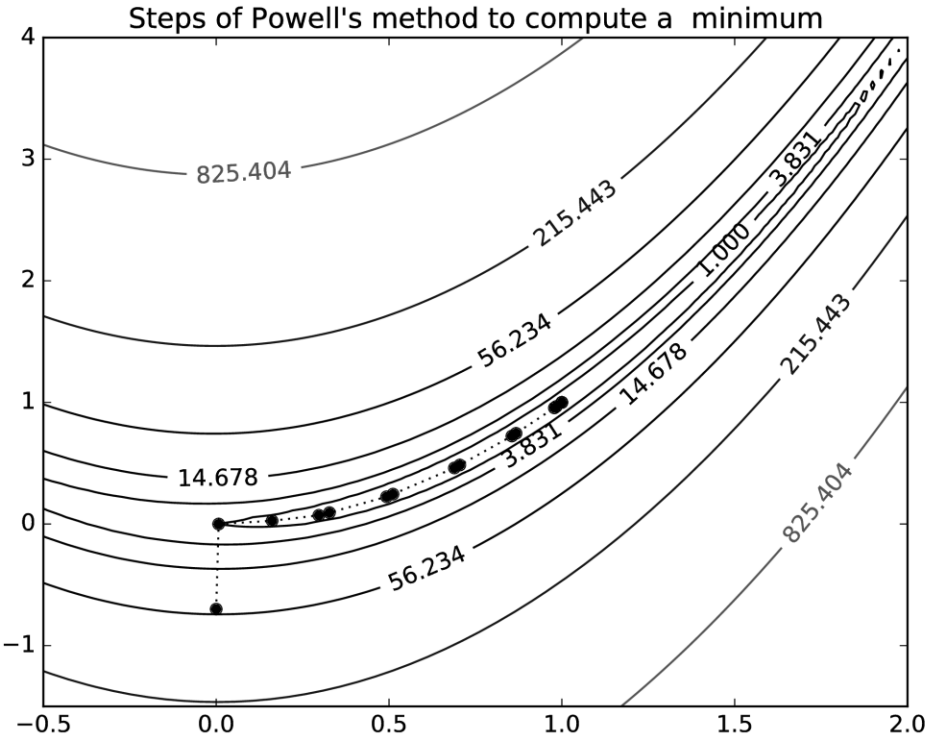

0 average
−8
−6
−4
−2
0
2
4
6
8

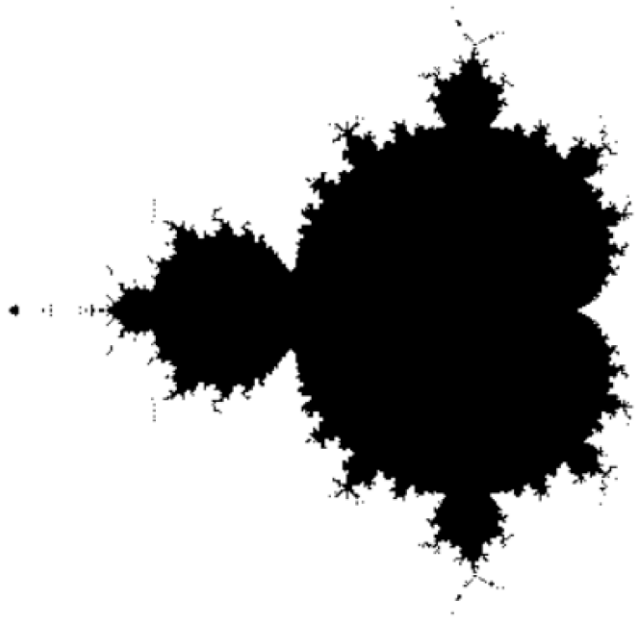

1 average
−8
−6
−4
−2
0
2
4
6
8

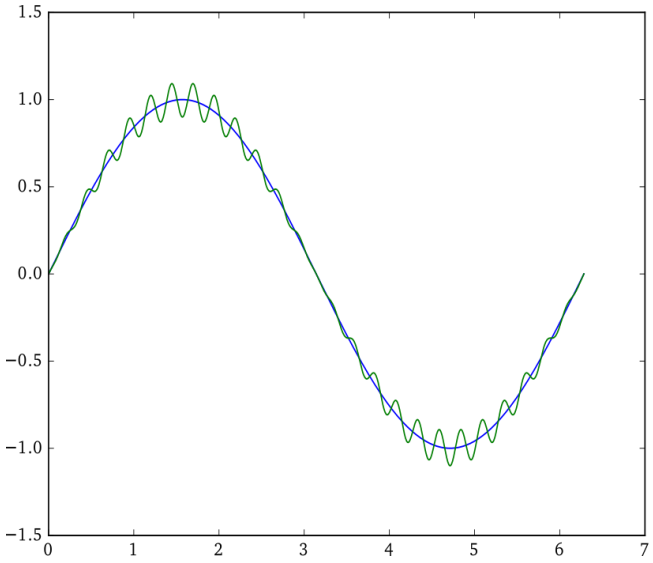

2 averages
−8
−6
−4
−2
0
2
4
6
8

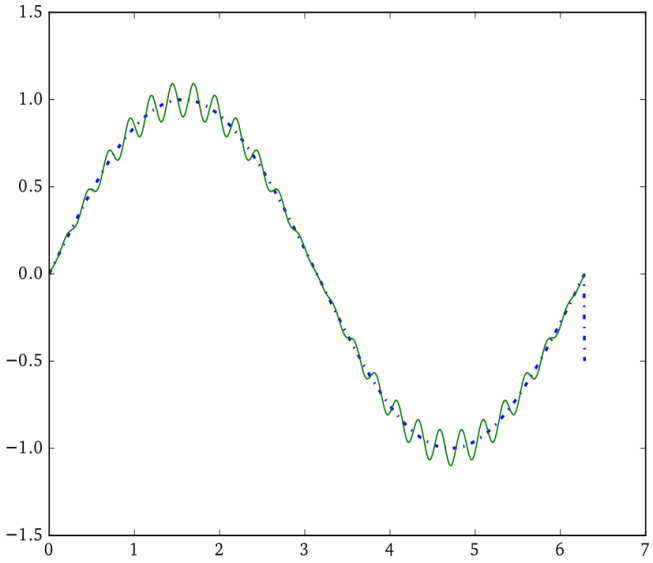

d
c
a
b
$P_{i,j}$
m points
n points

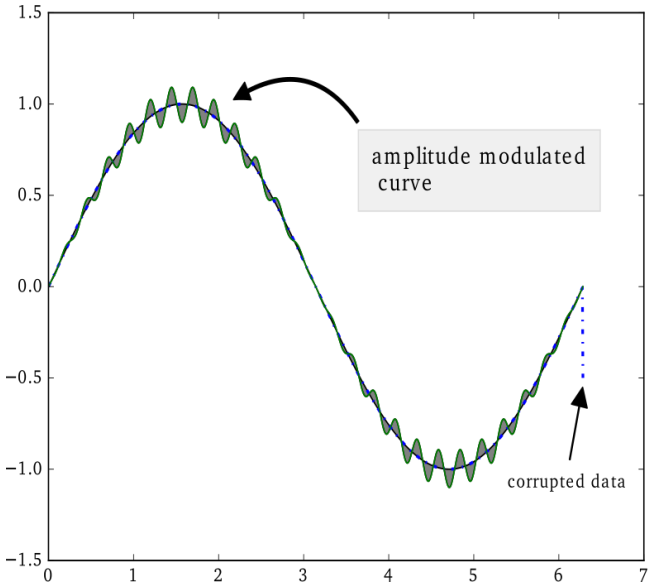

Rosenbrock Function: $f(x,y) = (1-x)^2 + 100(y-x^2)^2$
x
y
−0.5
0.0
0.5
1.0
1.5
2.0
−1
0
1
2
3
4

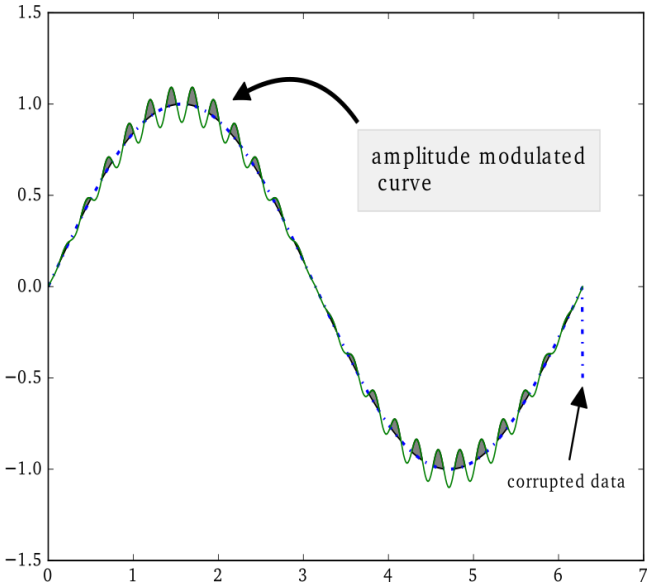

Steps of Powell's method to compute a minimum
825.404
215.443
56.234
14.678
3.831
1.000
3.831
14.678
215.443
56.234
825.404
4
3
2
1
0
−1
−0.5
0.0
0.5
1.0
1.5
2.0

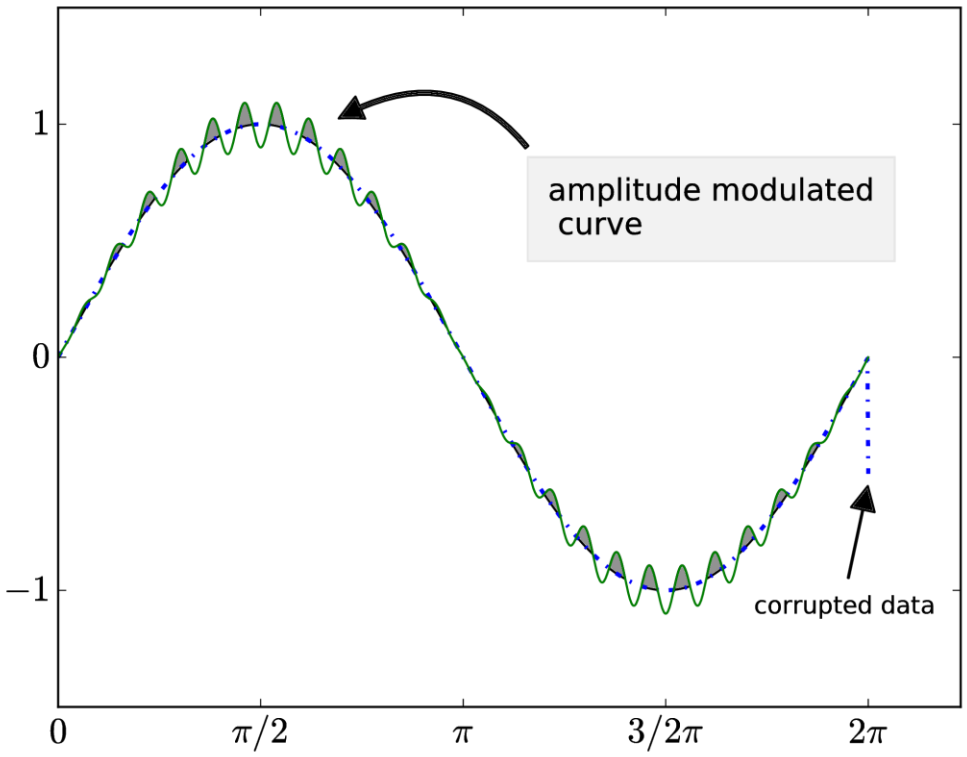


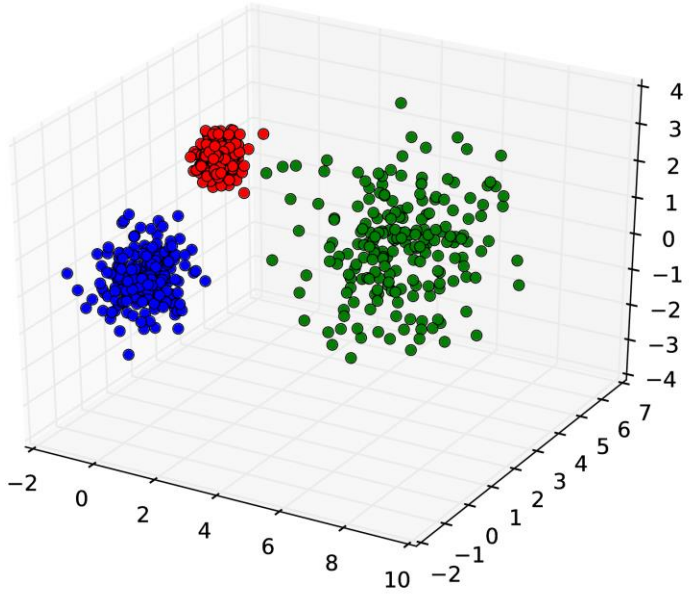

1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0
1
2
3
4
5
6
7

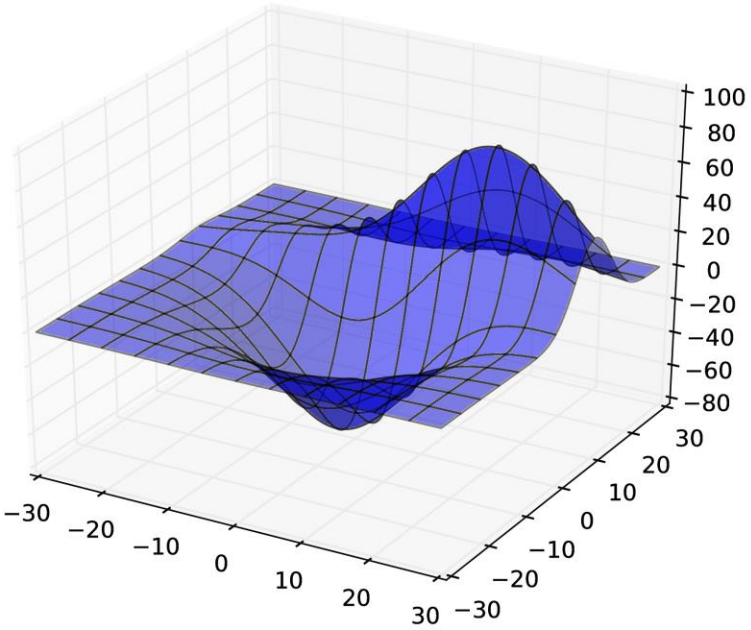

1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0
1
2
3
4
5
6
7

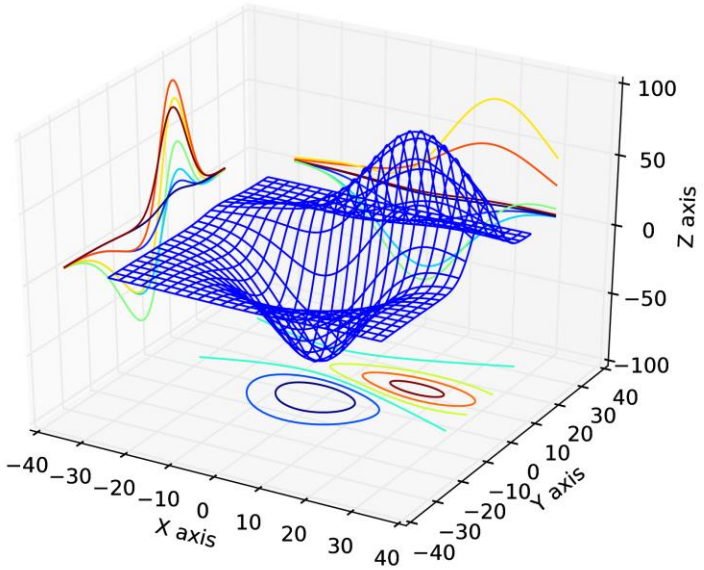

amplitude modulated
curve
corrupted data
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0
1
2
3
4
5
6
7


amplitude modulated
curve
corrupted data
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0
1
2
3
4
5
6
7


amplitude modulated
curve
corrupted data
1
0
−1
0
π/2
π
3/2π
2π


−2
0
2
4
6
8
10
−2
−1
0
1
2
3
4
5
6
7
4
3
2
1
0
−1
−2
−3
−4


100
80
60
40
20
0
−20
−40
−60
−80
−30
−20
−10
0
10
20
30
−30
−20
−10
0
10
20
30


100
50
0
−50
−100
Z axis
−40
−30
−20
−10
0
10
20
30
40
X axis
−40
−30
−20
−10
0
10
20
30
40
Y axis