

Lab 4: Plotting with matplotlib and scipy

Due date: Monday Feb 13, 11:59pm

The task is to construct a plot that shows the distribution of x and y in a contour or density plot (for example use matplotlib with `hist2d`) and show the marginal histograms of the x and y values. See Figure 1

- Generate 5000 random X values that come from a Normal distribution with mean 10 and standard deviation of 20, generate 5000 Y values that come from a gamma distribution with $\alpha=5$, and $\beta=2$.
- Generate a density histogram of the X,Y coordinates, there are several way possible, for example use `hist2d` or kernel density smooting.
- generate histograms for X and Y , these are the marginal distributions.
- generate a plot that has on the top or bottom side of the X/Y density plot the X marginals and on the left or right side of the X/Y density plot the Y marginals.
- use a different color scheme than the default, the figure is only an example do not copy it.
- Create the combined plot using `subplot` or using `gridspec`.

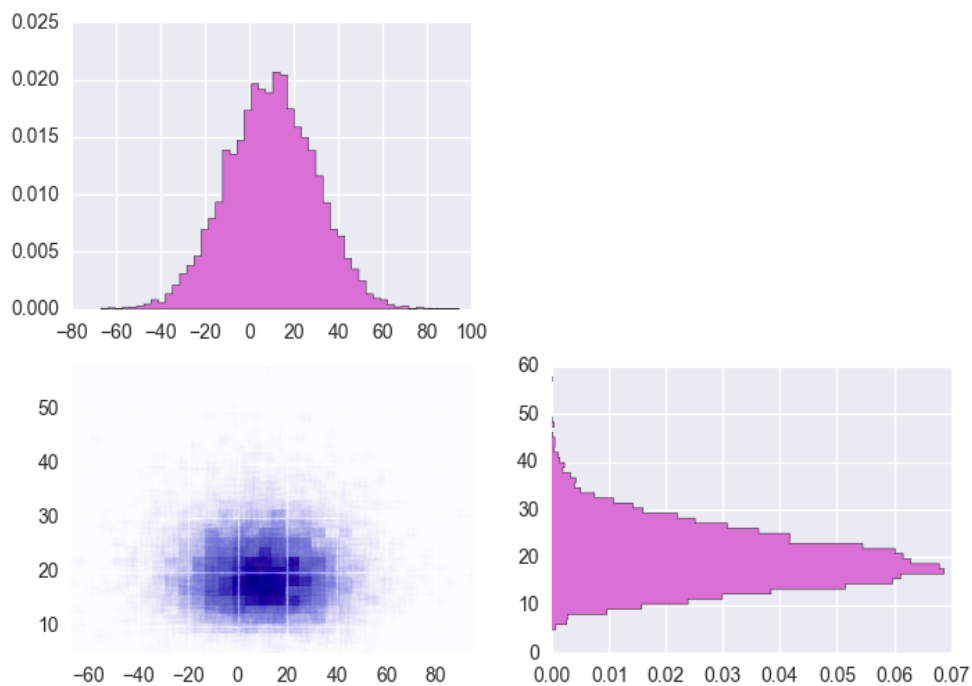


Figure 1: Figure that shows data that was drawn from two distributions, one for x and one for y coordinates with the marginal distributions.