7.4 Reliability and completeness

It's straightforward enough to repeat the analysis of ¶7.1 for an exponential or Laplacian. The form

$$\text{prob}(x \mid S) = \frac{1}{\sqrt{2}} \exp -\sqrt{2} \mid x - S \mid$$

has unit variance and so matches that analysis. The only difficult bit is dealing with the absolute value in the exponent, as for the completeness the integral breaks into two parts. The result is shown in the Figure; clearly one is better off with Gaussian noise, if a low false alarm rate is required.

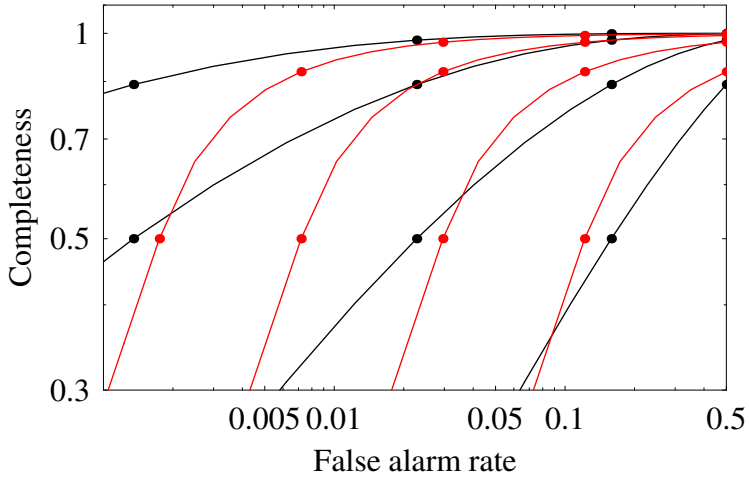

Figure 1: The reliability – completeness plane, with the original calculation based on a Gaussian (black) and for an exponential/Laplacian of the same variance (red).