

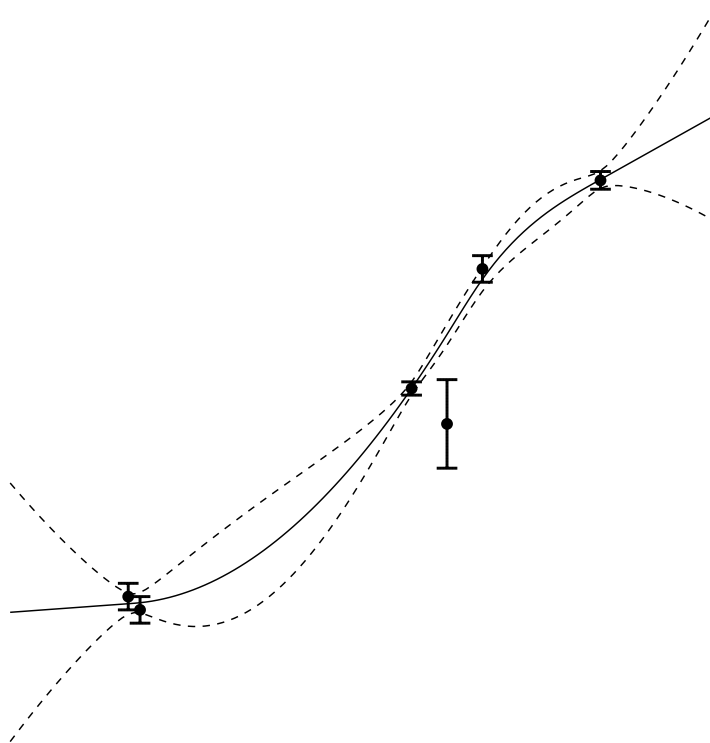
CALIBRATION and INTERPOLATION

John Skilling

Maximum Entropy Data Consultants Ltd
Kenmare, County Kerry, Ireland
(e-mail: skilling@eircom.net)

Abstract

Interpolation is the problem of fitting a curve $y(x)$ to data (which may be inaccurate), and calibration refers to reading $x(y)$ from this curve. Traditionally, spline interpolation is often used, but this tends to overshoot and ring badly unless the calibration points are evenly spaced. But this restriction should not be needed. Here as elsewhere in science, more data should give better results. This paper presents a free-form probabilistic solution controlled by the degree of curvature of the interpolant. The analysis puts the spline suggestion into context, and generates appropriate uncertainties.



Key Words: Bayesian, calibration, interpolation, free-form.