

In present work we study properties of log-concave probability distributions. We summarize basic definitions and theorems in one and also multidimensional space and apply them to the specific distributions. The class of log-concave densities includes most of well-known and frequently used probability distributions, examples include normal, exponential, for certain values of parameters also Gamma, Beta and many others.

The assumption about the log-concavity of a probability distribution appears in various applications, e.g. in econometrics, reliability theory, stochastic programming or optimization. We are interested in the nonparametric maximum likelihood estimation of log-concave probability densities using the software `R`.