

This paper discusses the EM algorithm. This algorithm is used, for example, to calculate maximum likelihood estimate of unknown parameter. The algorithm is based on repeated calculations of certain expected value and maximizing specific function. We begin with parameter estimation problem, describe the maximum likelihood method and concept of incomplete data. Then we formulate the EM algorithm and its properties. In the next chapter we apply this knowledge to three selected statistical problems. At first we examine standard mixture model, then the linear mixed model and finally we analyze censored data.