

In this work we analyze the method of least squares. We explain the basic mathematical theory that is crucial for understanding the method of least squares and show how the least squares problem can be solved via the system of normal equations using the QR-decomposition, Cholesky-decomposition or SVD of some matrix. We also show how the method of least squares can be used to solve the problem of data fitting and data classification. We have experimentally verified the theory covered in this thesis by implementing algorithm for recognizing handwritten digits. Apart from the handwritten digits recognition problem we show two more practical examples of the application of least squares. The first one relates to finding a solution to the least norm problem. In the second example we use the method of least squares to estimate the parameters of a linear measurement model.