Maximum likelihood framework for computing robust statistics

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Robust methods are often used to estimate model parameters when outliers are present. In contrast with the classical statistical modelling, the methodology of computing robust statistics is often *ad hoc* and lacks a unified approach. We developed a method using likelihood to make statistical modelling more robust for addressing above mentioned issues. To develop this method, the finite mixture form is being used as a mathematical tool and the weights for observations are computed at the E-step of EM algorithm. For promoting our algorithm and simplification, we explain the method of computing robust statistics for the linear model parameters. Later we will discuss results from some simulation and the real example of well known speed-of-light data. Finally, we compare our approach with classical robust methods, but our reason for developing the framework lies in its applicability to maximum likelihood modelling in general.