ABSTRACT

This dissertation deals with generalized mean value entropies and their properties.

The mean value approach has been found to be of increasing importance in the development of parametric representations of entropy. So after a brief introduction to the basic ideas and subject matter of information theory, we give two elegant characterizations of entropy, one due to Shannon, the other to Faddeev. The main body of the work begins to unfold next, when Renyi's mean value entropy is considered.

The main emphasis of this work is on the subject matter of chapter 4: a non-additive mean value approach to entropy. Here we consider in detail the work of Sharma and Mittal and the properties of these mean value entropies.

The non-additive idea is extended to entropy in the continuous case in chapter V.

We also consider an approach to entropy via noiseless coding. Here we consider the work of Shannon. But the emphasis is on the generalized mean value approach of Campbell and Sharma-Mittal.

The dissertation closes with a note on two possible non-probabilistic views for entropy, the second of which uses a psuedo mean-value property as one of its axioms.