

Editorial

Dear Colleague:

Welcome to volume 11(6) of *Intelligent Data Analysis* – An international Journal.

The last issue of volume 11 consists of seven articles. We start with a review article followed by three articles on different aspects of supervised and unsupervised learning. The last three articles of this issue are on data preprocessing and also interesting applications of wavelets.

The first article by Omran et al. is a review article on clustering methods. In addition to a broad overview of clustering techniques, this article contains some discussions about cluster quality indices and methods on automatically determining the number of clusters. Applications of different heuristic approaches are also included in this article. Cohen et al., in the second article, describe the value of chunks in information and introduce an unsupervised algorithm, called Voting Experts, for finding chunks in sequences. This has applications to many problems such as segmentations. This unsupervised algorithm works with a large batch of meaningless symbols, with the task of computing between and within chunk entropy. It generates a statistical signature of chunks where its results are low entropy within and high entropy between along with a relatively high recall and precision on its segmentation tasks. The third article on instance based learning by Beringer and Hüllermeier discusses the importance of proper stream mining so that incoming data is analyzed in an incremental manner and the data analysis algorithms respond to changes in data characteristics. The article introduces an instance based learning algorithm highly suitable for data streams, along with some experimental results where the flexibility and robustness of the algorithm is shown. Burr and Doak, in the fourth article, introduce a new approach to discriminant analysis that is a non-parametric (distribution-free) method. The algorithm uses a kernel density estimation to estimate the probability density of each class where continuous, categorical and order categorical predictors can be analyzed. The experimental results demonstrate the advantages of the new method and its comparison with some existing ones.

Anomaly detection is a major task in data analysis. Eberle and Holder in the next article discuss the importance of anomaly detection in graph based data and present an approach to uncovering anomalies in domains where anomalies consist of unexpected entity-relationship alterations. Three algorithms are presented, each suitable for detecting anomalies for certain types of graphs. The article includes validation of the three approaches using synthetic and real-world data where the usefulness of the algorithms is demonstrated.

The last two articles of this issue are on wavelets. The article by Ramakrishnan and Selvan proposes a new wavelet algorithm for image texture classification where noise is a major problem. Their approach is based on modeling probability density function of selected singular values using a maximum likelihood estimation technique. The model parameters are then used as features for classification. The experimental results, that include its comparison with wavelet domain generalized Guassian density based model, show how better the algorithm performs in classification under noisy environments. Similarly, Barua and Alhadj in the last article of this issue introduce a set of wavelet transform algorithms that are based

on a multiprocessor architecture and evaluate them on detecting spatial outliers in meteorological data. The outlier detection experiments demonstrate important and valuable information from a spatial data set which is the subject of this paper. The applicability and effectiveness of the proposed algorithms are evaluated on a set of real world data sets.

And finally, the IDA-2007 (<http://www.ida2007.org/>) conference was held in September in Slovenia this year. Among the special issues of the IDA journal planned for next year (Volume 12 – 2008) would be one that would include the best 5–6 papers presented during this event.

With our best wishes,

Dr. A. Famili
Editor-in-Chief