



Summary & Conclusion

SUMMARY AND CONCLUSION

Matrix theory has been one of the most utilized concepts in fuzzy models and neutrosophic models. From solving equations to characterizing linear transformations or linear operators, matrices are used. Bimatrices find their applications in several real models.

Most of the fuzzy models which deal with the analysis and study of unsupervised data make use of bimatrices and bigraphs. The neutrosophic models are fuzzy models that permit the factor of indeterminacy. It also plays a significant role and utilizes the concept of neutrosophic matrices and neutrosophic graphs.

The fuzzy and neutrosophic tools like fuzzy cognitive maps and neutrosophic cognitive maps help in the analysis of real-world problems and they happen to be mathematical tools which can give the hidden pattern of the problem under investigation.

The main aim of this thesis is to study some of the applications of bimatrices, fuzzy bimatrices, neutrosophic bimatrices and fuzzy interval bimatrices to real-world problems.

The first chapter is devoted to the study of the basic concepts of bimatrices, fuzzy bimatrices, neutrosophic bimatrices and fuzzy interval bimatrices.

In section 1.1, bimatrix operations are defined with interesting examples. Some fundamental properties regarding these operations are also studied.

Neutrosophic bimatrices are studied in section 1.2. Different types of neutrosophic bimatrices are defined with examples.

In section 1.3, operations on fuzzy matrices are defined and different types of fuzzy bimatrices are introduced with examples.

Basic definitions and properties of interval bimatrices, fuzzy interval bimatrices and neutrosophic interval bimatrices are studied with interesting with examples in sections 1.4, 1.5 and 1.6 respectively.

In section 2.1, bigraphs and matrix representation of bigraphs are studied.

Different types of neutrosophic bigraphs are defined and its properties are studied in section 2.2.

Chapter III deals with fuzzy cognitive bimap and neutrosophic cognitive bimap. Definition of fuzzy cognitive maps and several of its interrelated definitions with interesting examples are given. The definition of fuzzy cognitive bimap is introduced.

Application of bimatrices to some fuzzy models is illustrated in chapter IV.

As an application of neutrosophic matrices, the child labor problem prevalent in India is modeled and this model is demonstrated in the first part of chapter V.

As an application of neutrosophic bimatrices, a model which describes the important factors influencing good business is illustrated in the second part of chapter V.

In the first part of chapter VI, a new model called fuzzy cognitive interval maps model is introduced as an application of fuzzy interval matrices. A rough sketch of this model is given and a symptom disease model in children taking five attributes using three experts is illustrated.

In the second part of chapter VI, as an application of fuzzy interval bimatrices, a new model called the fuzzy interval bimatix model, which has the capacity to work on two sets of experts opinions taking the two sets of concepts is constructed and demonstrated.