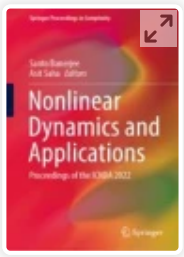

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Nonlinear Dynamics and Applications

Proceedings of the ICNDA 2022

Editors: Santo Banerjee, Asit Saha

Presents latest results in nonlinear dynamics applications in various branches of society, science, and engineering

Covers topics including quantum chaos, deep learning and machine learning, and the dynamics of the COVID-19 pandemic

Is useful to both students and researchers interested in nonlinear dynamics and its practical applications

Part of the book series: Springer Proceedings in Complexity (SPCOM)

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Mathematical Modeling: Trends and Applications

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About this book

This book covers recent trends and applications of nonlinear dynamics in various branches of society, science, and engineering. The selected peer-reviewed contributions were presented at the International Conference on Nonlinear Dynamics and Applications (ICNDA 2022) at Sikkim Manipal Institute of Technology (SMIT) and cover a broad swath of topics ranging from chaos theory and fractals to quantum

systems and the dynamics of the COVID-19 pandemic. Organized by the SMIT Department of Mathematics, this international conference offers an interdisciplinary stage for scientists, researchers, and inventors to present and discuss the latest innovations and trends in all possible areas of nonlinear dynamics.

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Keywords

Dynamical Systems

Chaos, Complexity and Fractals

The Dynamics of COVID 19 Pandemic

Graphs and Networks

Plasma Dynamics and Applications

Fluid Dynamics and Nonlinear Flows

Fractional Systems and Applications

Communication and its Application

Cryptography and Networks

Deep Learning and Machine Learning

Chaos and Complexity in Social Structures

Ecological, Biological and Biomedical Models

Signal Processing and Signal Analysis

Quantum Systems and Quantum Chaos

Financial Data and Applications

Genetic Algorithm, Optimization and Artificial Intelligence

Nonlinear Effects on Climate Change

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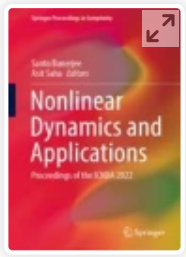

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A Multi-criteria Model of Selection of Students for Project Work Based on the Analysis of Their Performance

Sukarna Dey Mondal, Dipendra Nath Ghosh & Pabitra Kumar Dey

Conference paper | First Online: 06 October 2022

Part of the Springer Proceedings in Complexity book series (SPCOM)

Abstract

Project work does not always imply extensive knowledge, but it does imply the application of such information. Through this project work, students are exposed to educational ideas as well as technical ideas. Therefore, the selection and evaluation of students are crucial parts of any project for any education organization concerning excellence. So, an attempt has been made to draw a mathematical model with the help of several MCDM techniques and Statistics from which it will be very easy to evaluate and select a suitable

student for the project. First of all, a payoff matrix has been created with the AHP method. Entropy is used to calculate the total weight. Then utility based, distance based, and out-ranking based MCDM techniques are applied to get several ranking structures. Ultimately, through a voting method, the study offers a ranking of 5 students under student excellence.

Keywords

AHP **Entropy** **TOPSIS** **VIKOR**

COPRAS **PROMETHEE-2** **WSM**

Voting system

References

1. Saaty, T.L.: The Analytic Hierarchy Process. McGraw-Hill, New York (1980)

2. Saaty, T.L.: Priority setting in complex problems. IEEE Trans. Eng. Manage. **30**(3), 140–155 (1983)

3. Hwang, C.L., Yoon, K.: Multiple Attribute Decision Making Methods and Applications. Springer, Berlin Heidelberg (1981)

4. Lohman, L.: Evaluation of university teaching as sound performance appraisal, Elsevier.https://doi.org/10.1016/j.stueduc.2021.101008

5. Dasanayaka, C.H., Abeykoon, C., Ranaweera, R.A.A.S., Koswatte, I.: The Impact of the Performance Appraisal Process on Job Satisfaction of the Academic Staff in Higher Educational Institutions. https://doi.org/10.3390/educsci11100623 (2021)

6. Dey, S., Ghosh, D.N.: An integrated approach of multi-criteria group decision making techniques to evaluate the overall performance of teachers. Int. J. Adv. Res. Comput. Sci. **7**(5) (2016)

7. Dey, S., Ghosh, D.N.: Non-teaching staff performance analysis using multi-criteria group decision making approach. Int. J. Educ. Learn. **4**(2), 35–50 (2015)

8. Brown, T.C., O'Kane, P., Mazumdar, B., McCracken. M.: Performance management: a scoping review of the literature and an agenda for future research **18**(1), 47–82 (2019)

9. Dey, S., Ghosh, D.N., Dey, P. K.: Prediction of NAAC grades for affiliated institute with the help of statistical multi criteria decision analysis: national conference on recent trends in IOT. Mach. Learn. Artif. Intell. Appl. **1**(2), 116–126 (2021)

10. Rana, S., Dey, P.K., Ghosh, D.N.: Best engineering college selection through fuzzy

multi-criteria decision making approach: a case study: universal journal of applied computer science and technology **2**(2), 246–256 (2012)

11. Dey, S., Ghosh, D.N.: Comparative evaluation of students' performance in campus recruitment of a technical institution through Fuzzy-MCDM techniques. Int. J. Comput. Sci. Eng. **7**(Special issue), 1

12. Brans, J.P., Vincke, Ph., Mareschal, B.: How to select and how to rank projects: the Promethee method. Europ. J. Oper. Res. **24**, 228–238 (1986)

13. Taleb, M.F.A., Mareschal, B.: Water resources planning in the middle east: application of the Promethee v Multicriteria method. Eur. J. Oper. Res. **81**, 500–511 (1995)

14. Pomerol, J.Ch., Romero, S.B.: Multi-criterion Decision in Management: Principles and Practice, Kluwer Academic, Netherlands (2000)

15. Opricovic, S., Treng, G.H.: Compromise solution by MCDM methods: a comparative analysis of VIKOR and TOPSIS. Eur. J. Oper. Res. **156**, 445–455 (2004)

16. Hwang, C., Yoon, K.: Multiple Attribute Decision-Making. Springer-Verlag, Methods and Application. A State-of-the-Art Survey (1981)

17. Loucks, D.P., Stedinger, J.R., Haith, D.A.: Water Resources Systems Planning and Analysis. Prentice-Hall, Englewood Cliffs, New Jersey (1981)

18. Vedula, S., Mujumdar, P.P.: Water Resources Systems, Modelling Techniques, and Analysis. Tata McGraw-Hill Publishing Company Limited, New Delhi (2005)

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