Dr. Shilpa Jain
B-802, Prerana CGHS, Plot No 8, Sector 56, Gurugram-122011
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Results-oriented professional looking forward to seek an opportunity to work in a conductive and best of environment where I can enhance my capabilities, inculcate new skills and make use of my knowledge and experience to deliver my best.

Academic Background

- **PhD from The NorthCap University (formerly ITM University, Gurgaon) and have published six research article in international journals and have presented five research papers in international conferences.**
- **M.Tech**. in Computer Science & Engineering, (2006) from RVD University with **74.14%**.
- **B.Tech** in Computer Science & Engineering, (2001) from C.C.S University with **72.6%**.
- **XII** - St. Ann's Sr. Sec School, Roorkee, (1996) from CBSE board with **76.2%**.
- **X** - Asha Modern School, Saharanpur,(1994) from CBSE board with **80%.**

Professional Synopsis

- Currently working at The NorthCap University as Visiting Faculty in APS for 1.5 years.
- Worked at Ansal University as Visiting Faculty for 2.5 years.
- Worked as Assistant Professor with Dronacharya College of Engineering, Gurgaon for 3 years.
- Worked as a lecturer in Shree Sastha Institute of Engineering and Technology, Chennai for 1 year.
- Worked as a lecturer in S.D College of Engineering and Technology, Muzaffarnagar for 1.5 years.
- ITIL V3 Foundation Certified with 100% score.
- Writing in Sciences certified from **Stanford University**.
- Attended 6 Trainings/Seminars/Workshops.
- Introduction to Data Analysis using excel certification from Coursera from Rice University, USA.

Trainings / Seminars / Workshops Attended

- Attended two day International workshop on Skill Enhancement in Teaching and Research from October 09 to 10, 2014 at ITM University, Gurgaon.
- Attended one day workshop on Advanced Optimization Techniques organized by Department of Mathematics, Jaypee Institute of Information Technology, Noida on September 23, 2014.

- Attended a two day workshop on Scientific writing organized by IIT (Indian Institute of Technology), Indore, under Continuing Education Program (CEP) on July 11 – 12, 2014.
- Attended a one day workshop on Soft Computing Techniques using Matlab, Organized by Department of Applied Sciences, ITM University, Gurgaon on March 08, 2014.
- Participated in the FDP (Faculty Development Programme) on Neural Network held on April 08, 2013 at ITM University Gurgaon.
- Participated in FDP (Faculty Development Programme) on Pattern Recognition and Image Processing using Matlab organized by Delhi Institute of Advance Studies held on June 1 -2, 2012.

Research Articles presented in International Conferences.

- Presented a paper entitled "Improved Mutation Operator for Genetic Algorithm"in 2nd International Conference on Mathematical Techniques in Engineering Applications organized by Department of Mathematics, Graphic Era University, Dehradun, Uttrakhand, India held on April 29-30, 2016.
- A Comparative Analysis of PSO(Particle Swarm Optimization) and Adaptive PSO for Prediction of Water Table Elevation Fluctuation at International Conference on Soft Computing Techniques for Engineering and Technology-2014 on August 7-8, 2014 at Graphic Era Hill University, Bhimtal Campus, Nanital, Uttrakhand, India.
- Presented a paper entitled "Binary coded GA for fuzzy time series prediction" in the International Conference on Emerging Trends in Computational and Applied Mathematics organized by Department of Applied Sciences, ITM University, Gurgaon held on June 2-4, 2014.
- Presented a paper entitled "Practical Aspects of Genetic Algorithms: A Review" in National Conference on Contemporary Developments in Mathematical Sciences and Computing at Galgotias University, Uttar Pradesh, India on February 2-3, 2013.
- Virtualization and Virtual Machines in National Seminar on Resent Advances in Information Technology at Dronacharya College of Engineering on 17th Jan 2007.

International Journal of Modeling, Simulation and Scientific Computing, (in Press)

Title: Adaptive particle swarm optimized fuzzy algorithm to predict water table elevation.

Abstract:

The proposed study helps to select length for fuzzy sets in fuzzy time series prediction. In order to analyze the impact of intervals and evaluate the efficiency of the proposed algorithm, numerical data of water recharge and discharge is considered to predict water table elevation fluctuation (WTEF). Particle Swarm Optimization (PSO) is a powerful tool to handle optimization of multi model problems whereas fuzzy logic can handle uncertainty. In this paper

adaptive inertia weights, rather than static inertia weights for PSO algorithm are adopted which further improves efficiency of PSO, and this modified PSO is termed as Adaptive particle swarm optimization (APSO) . APSO optimizes the intervals which are used to generate fuzzy sets for prediction of WTEF. Advantages of APSO are few parameters to adjust, no derivative information is required and APSO can handle tough cost function with many local minima. The results indicate that the APSO performs better than PSO and Genetic algorithm (GA) approaches for the same problem.

Research Article in International Journal of Cybernetics and Information Technologies (Scopus Indexed Journal)

Title: A unique computational method for constructing intervals in fuzzy time series forecasting.
Abstract:
This research article suggests a computational method for constructing fuzzy sets in absence of expert knowledge. This method uses concepts of central tendencies mean and variance. This study gives a solution to the critical issue in designing of fuzzy systems, number of fuzzy sets. Proposed computational method helps in finding intervals and thereby fuzzy sets for fuzzy time series forecasting. Proposed computational method is implemented on the authentic data for the enrolments of University of Alabama, which is considered as benchmark problem in the field of fuzzy time series. The forecasted values are compared with the results of other methods to state its supremacy. Projected computational method along with Gaussian membership function gave promising results over other methods for fuzzy time series for the above said benchmark data.

Research Article in International Journal of Data Analysis Techniques and Strategies (IJDATS) (Scopus Indexed Journal)

Title: Particle Swarm Optimized Fuzzy Method for Prediction of Water Table Elevation Fluctuation
Abstract:
Particle Swarm Optimization (PSO) is a population based powerful evolutionary computation technique inspired by social behavior simulation like bird flocking and fish schooling. PSO has been applied successfully to wide range of applications like scheduling, Artificial Neural Networks (ANN) training, control strategy determination and ingredient mix optimization. Fuzzy logic can easily cope up with vagueness and uncertainty in time series data. This has been applied for prediction of water table elevation, in our earlier work and results are quite promising. But the optimization of length of fuzzy intervals was a big constraint for researchers. In this research paper the optimal length of fuzzy intervals in the universe of discourse is been selected using particle swarm optimization. The results obtained after applying this combined approach to prediction of water table elevation are better than the previous method.

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Research Article in Aloy Journal of Soft Computing and Applications

Title: Genetic Algorithms based fuzzy time series prediction for water table elevation fluctuation.

Abstract:
Fuzzy time series is a powerful forecasting technique. It performs well when no statistical trend or cycle is available in the data. Fuzzy time series has been applied to the prediction of enrollment of students, temperature, stock indices and many areas of environment and ecology. The area of prediction of water table elevation fluctuation is always an area of interest to researchers due to very high consumption of water. Genetic Algorithms is an optimization and search technique. In this research article a combined fuzzy and Genetic Algorithm approach is used for prediction of water table elevation fluctuation. In proposed method binary GA is used to adjust the length of fuzzy intervals and rule base is constructed with the help of a method proposed by Wang and Mendel. This method is implemented on three models of prediction of water table elevation fluctuation. Thousand generations were explored to state that Coefficient of Determination (R2) for Fuzzy model varies from 60.8% to 90.8% whereas Fuzzy combined with GA improves it from 89.9% to 91.0%.

Research Article in International Journal of Advanced Sciences and Technology.

Title: Prediction of Water Table Elevation Fluctuation through Fuzzy Logic and Artificial Neural Networks.

Abstract:
Soft Computing tools are becoming very popular in solving hydrological problems. These tools have immense strength to deal with such complex problems. Water Table elevation estimation is an important aspect to understand the mechanism of ground water resources. The present study aims at the application of Artificial Neural Networks (ANN) & Fuzzy logic for simulation of water table elevation. This paper also investigates the best model to forecast water table elevation. Ten ANN models are developed in this study . These developed models are trained, tested and validated on the available data of Budaun District. Comparing observed data and the estimated data through developed ANN models and Fuzzy models, it has been observed that the developed Fuzzy models predict better results for four models and for model-5 ANN bore better results.

List of Publications:

1. D. C. S. Bisht, **S. Jain** and P. K. Srivastava, Adaptive particle swarm optimized fuzzy algorithm to predict water table elevation", *International Journal of Modeling, Simulation and Scientific Computing*, (in Press) **(Scopus Indexed).**
2. **S. Jain**, P. C. Mathpal, D. Bisht and P. Singh, A unique computational method for constructing intervals in fuzzy time series forecasting", Cybernetics and Information

Technologies, vol.18, no.1, 3-10, 2018 **(Scopus Indexed).**
3. **S. Jain**, D. Bisht, and P.C.Mathpal, Particle swarm optimized fuzzy method for prediction of water table elevation fluctuation", *International Journal of Data Analysis Techniques and Strategies*, vol.10 no.2, pp.99-110, 2018. **(Scopus Indexed)**.
4. **S. Jain** and D. Bisht, Genetic Algorithms based fuzzy time series prediction for water table elevation fluctuation", *Aloy Journal of Soft Computing and Applications*, vol.3, no.1, pp.14-23, 2015.
5. D. Bisht, **S. Jain** and M. M. Raju, Prediction of water table elevation fluctuation through fuzzy logic and artificial neural networks", *International Journal of Advanced in Sciences and Technology(SERSC)*, vol.51, pp.107-120, 2013.
6. **S. Jain**, D. C. S. Bisht, P. Singh and P. C. Mathpal, Real coded Genetic Algorithm for fuzzy time series prediction", *in Proceedings of AIP Conference 1897, Noida, India, Ed. By American Institute of Physics*, pp. 020021, 2015 **(Scopus Indexed)**.

College: Dronacharya College of Engineering Dated: Jul'04 to Aug'07

- **Awarded as the best faculty in Dronacharya College of Engineering, Gurgaon for the academic year 2005-2006.**
- 15 students got 90% above marks in external examination taught by me.
- Worked as a Technical Committee in charge.
- Departmental Annual fest coordinator.
- My core responsibilities include taking lectures like Introduction to logic, Neural Networks, C, C++, DBMS etc.

College: Shree Sastha Institute of Engineering & Technology Dated: Jan'03 to Jan'04

- Member in the C**ultural Activities Board**.
- My core responsibilities include taking lectures like Neural Networks, C++ etc.

College: SD College of Engineering & Technology Dated: Aug'01 -May'02

- **Guest Lecture** arrangements, **Seminars** and **Technical Symposium** activity incharge.
- Member in the C**ultural Activities Board**.
- Was **Warden** of Girl's Hostel.
- Actively participated in **Dance, Drama, Debates and Annual Fests** during the academics and have got certificates too.
- Participated as **Host** in the **Annual Function** of SD College of Engineering and Technology.

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- My core responsibilities include taking lectures on varied subjects like C, C++,etc.

Computer Proficiency

- Machine learning, Matlab 7.6, R Software, Fuzzy Inference System(FIS), Genetic Algorithm(G.A.) Coding, Neural Network Coding and Neural Network tool, C and C++.
- Programming Language C, C++, Oracle 9i, SQL Server.
- MS Office (MS-Word, MS-Excel, PowerPoint)

Achievements

- **Awarded as the best faculty in Dronacharya College of Engineering, Gurgaon for the academic year 2005-2006.**
- **Four** research articles are published in **Scopus indexed journals.**
- **CGPA is 9.5 for Ph.D. first and second semester.**
- 15 students got 90% above marks in external examination in a ITL subject taught.
- 100% score in ITIL V3 Foundation certification.
- Stanford University certified in Writing in Sciences.
- Consecutive three years of Annual Fest Anchor.

Personal Details:

Languages: Excellent written and verbal communication in English and Hindi.
Experience: 13+ Years.

Dr. Shilpa Jain