

OPTIMIZATION OF BACK PROPAGATION NEURAL NETWORK FOR RAIN FORECASTING

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Abstract

Deep learning has recently emerged as a viable method for addressing difficult problems and analyzing massive amounts of data. The Mahanadi river basin at the appropriate scale is generally the most logical geographical unit of stream flow analysis and water resources management. We created a method of rainfall forecasting model by analyzing rainfall data from India and predicting future rainfall using optimized neural networks. We will predict weather data time series especially long-range rainfall over Mahanadi river basin. The purpose of this research is to provide a thorough overview of current scientific studies for short-term Region, Month, and temperature-based rainfall forecasting on a geographical scale. This article offers a thorough examination and comparison of several neural network topologies utilized by experts for rainfall prediction. The article also addresses the difficulties encountered while using various computational models for yearly/monthly rainfall forecasts. Furthermore, the article provides several accuracy metrics used by experts to evaluate the performance of ANN

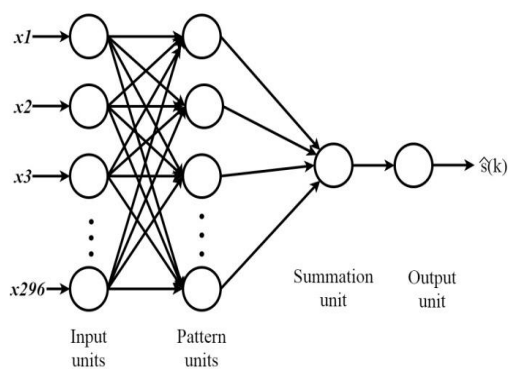


Figure:1 O-BPNN Architecture

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Admabad
Admabad	0	36.8	0	0	0	256.3	388.3222	287.9388	373.2	51.1	0	0	729.4
Admabad	0	31.7	0	6.3	37.1	179.4	456.4	287.3187	184.6462	0	0	0	670.9
Admabad	0	8.4	0	0	13.4	100	237.4	242.2	294.8	38.4	0	0	388.4
Admabad	0	25	0	0	0	101	666.8	534.8	68.7	0	0	0	1454.3
Admabad	0.3	0	38	0	0	84.4	185.3	278.8	162.3	0	0	0	725.1
Admabad	0	0	0	35	78.2	189.3	237.6	287.2	251.4	0	0	0	928.7
Admabad	0	0	79.2	0	0	263	347	431	52	0	0	43.2	1115.4
Admabad	37.2	47	35	10	0	228.8	527.6	321.2	258	53	0	2	1359.8
Admabad	0	0	0	19.6	20	93.6	427.8	349.4	184.8	0	0	0	959.2
Admabad	5	0	17	0	0	154.0889	343	295.9724	151	0	0	0	716
Admabad	0	0	0	0	0	154.0889	388.3222	295.9724	186.5185	0	0	0	0
Admabad	0	0	0	0	0	95	137	204.8	234	34.3	70	0	759.1
Admabad	0	0	0	0	0	158.9981	365.4747	282	237	258	0	0	777
Admabad	0	0	0	0	0	137	163	201	64	61	0	0	646
Admabad	0	0	0	0	0	256	353	173	382	165	0	0	1329
Admabad	0	0	0	0	0	211	495	296	112	0	0	0	1114
Admabad	0	0	0	0	0	69	311	312	222	58	0	0	1012
Admabad	0	0	0	0	0	111	176	460	62	12	0	0	1285
Admabad	0	0	0	0	0	297	210	189	190	28	0	0	934
Admabad	0	0	0	0	0	295	348	204	428	16	0	0	1287
Admabad	31	0	44	0	9	143	312	421	178	0	0	0	1898
Admabad	0	0	0	0	44	108	138	145	48	46	0	0	529
Admabad	0	0	0	0	0	155	247	343	231	85	0	9	1270
Admabad	24	29	0	7	23	277	346	261	38	100	0	0	941

Fig.2. screen shot of Dataset of different stations

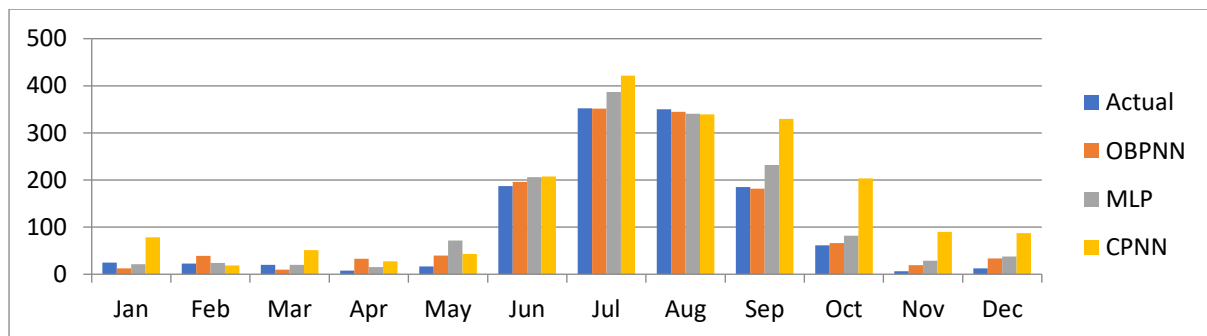


Figure 3 Comparative analysis of proposed technique with well known methods

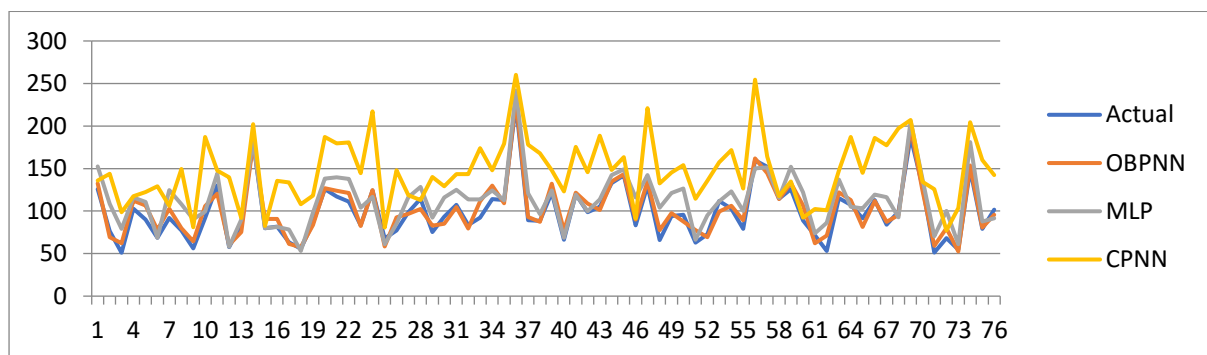


Figure 4 Comparative analysis of proposed technique with well known methods

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