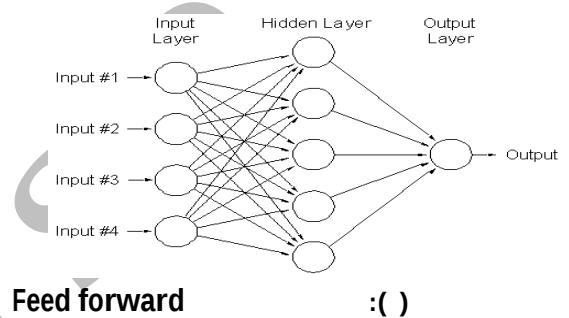
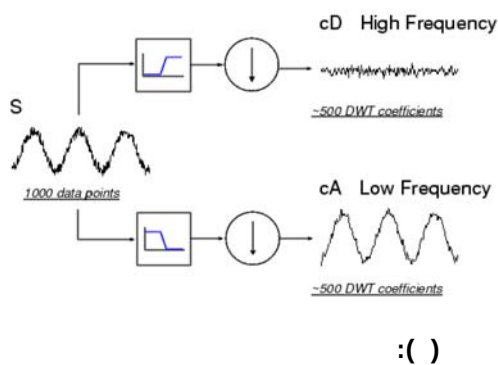


Archive of SID

.() .()
 ANN .()
 /) /
 ((Bowden, et al 2005)
 .(Cannas, et al 2006)
 ANN
 Liu, et al
 (Karaca, F., Özkaya, B. 2006) ‘(Chi, et al, 2005)(2002)
 .(Sahoo, et al. 2006
 (WNN²) -
 Haykin, 1999 Maier ANN (Sheng, & Li,. 2004)
 (&, Dandy. 2000 (Shujiang, & Henry. 2007)
 ANN
)
 .((WT³) ANN
 WNN
 ANN
 Cybenko, G.1989,Hornik, et al,. 1989, Zhang,
 .(et al. 1998
 .(Zhang, et al. 1998)
 Coulibaly,
 (et al,. 2000)
)
 Maier &, Dandy. ANN (2000))

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(S+P(4,4))

.(Calder bank, et al. 1997)

$$C(\text{Scale}, \text{Position}) = \int_{-\infty}^{+\infty} f(t) \psi(\text{Scale}, \text{Position}) dt \quad ()$$

$$CWT_s^{\psi}(a, b) = \frac{1}{\sqrt{|a|}} \int_{-\infty}^{+\infty} s(t) \psi_{a,b}^*(t) dt \quad ()$$

R^2
(RMSE¹⁶)
(MAE¹⁵)
(AARE¹⁷)

a b a
 $*$ b ()
(t) $S(t)$

R^2

‡ (Jain, & Indurthy, 2003)(TS¹⁸)

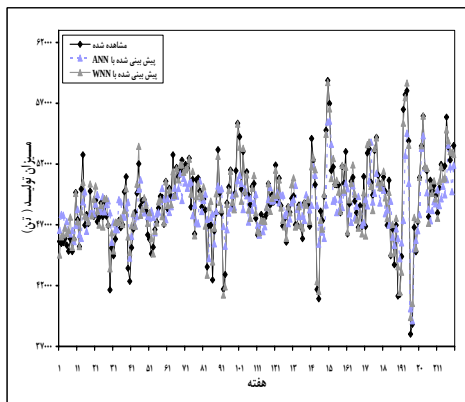
(Jain, & Ormsbee, 2004

$x\%$ TS_X

(ARE¹⁹)

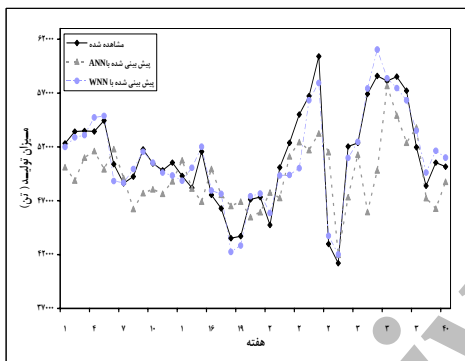
$x\%$ TS

$$TS_x = \frac{Y_x}{n} \times 100 \quad ()$$



:()

WNN ANN



:()

WNN ANN

WNN ANN

()

ANN

ARE

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WNN

ANN

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WNN

WNN

$$Y_X = \frac{1}{n} \sum_{i=1}^n x_i$$

Rajurkar, ()

(et al. 2004

$$N = 0.8 \times \frac{(X_i - MIN X_i)}{(MAX X_i - MIN X_i)} + 0.1 \quad ()$$

$$(S+P(4,4))$$

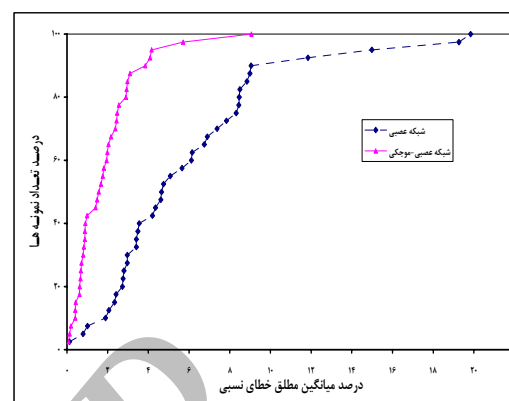
$$()$$

:()

WNN ANN

	ANN	WNN	ANN	WNN
RMSE	/	/	/	/
MAE	/	/	/	/
AARE	/ %	/ %	/ %	/ %
R ²	0.51	0.94	0.4	0.91

- 1- Artificial Neural Networks
- 2- Wavelet-Neural Network
- 3- Wavelet Transform
- 4- Wavelet
- 5- Non-Stationary
- 6- Continence Wavelet Transform
- 7- Discrete Wavelet Transform
- 8- Scale
- 9- Translation
- 10- Mother Wavelet
- 11- Scales & Positions
- 12- Approximations
- 13- Details
- 14- Haar Wavelet
- 15- Mean Absolute Error
- 16- Root Mean Square Error
- 17- Average Absolute Relative Error
- 18- Threshold Statistic
- 19- Absolute Relative Error
- 20- Ant wavelet



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WNN ANN

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