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rhesami@iust.ac.ir

a_afshar@iust.ac.ir - :

jmosavi@iust.ac.ir - :

(lag time)



ANFIS

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ANFIS

$$y = f(x_1, x_2, \dots)$$

ANFIS

ANFIS



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¹ - Checking Deta Set



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ANFIS

(Learning)

(Testing)

ANFIS

(Checking)

¹ - Overfitting



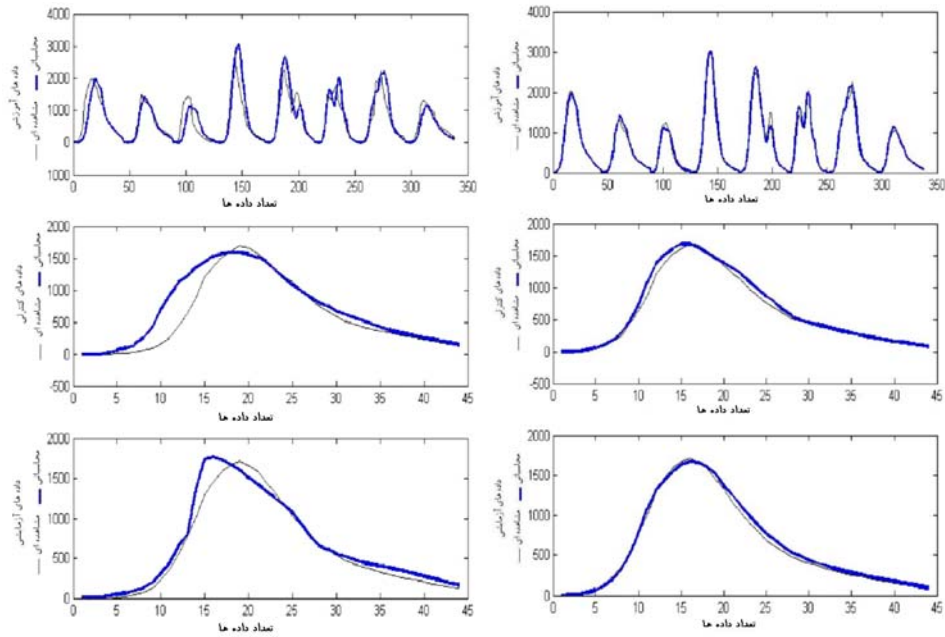
ANFIS

$$Z_{(t-\alpha)} = A * X_{(t)}^n + B * Y_{(t)}^m$$

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- ¹ - Training
 - ² - Checking
 - ³ - Testing
 - ⁴ - Lead time
 - ⁵ - Lag time



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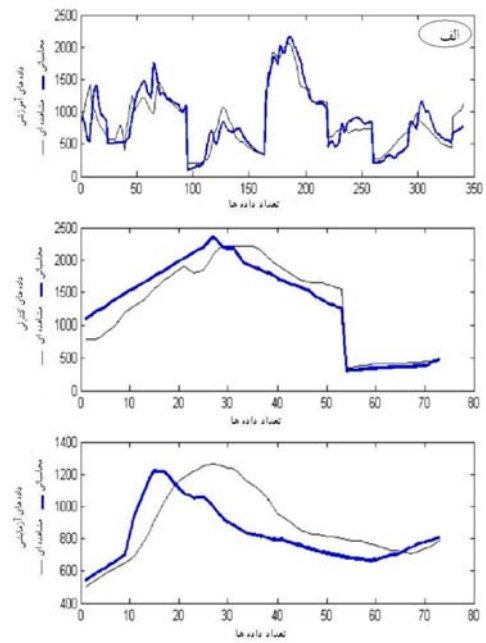
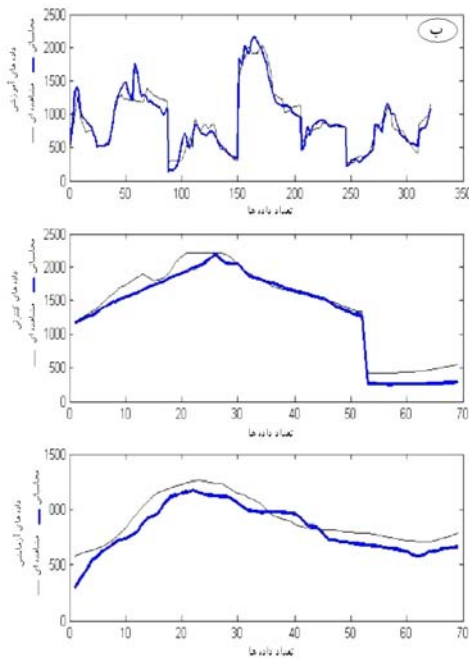
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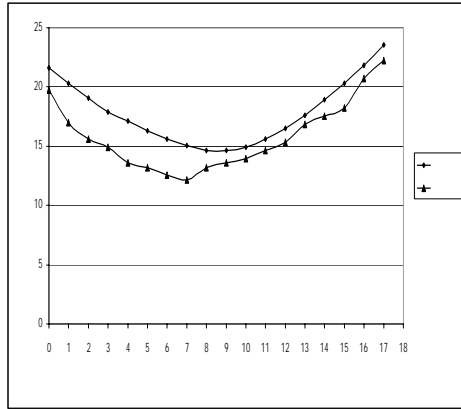


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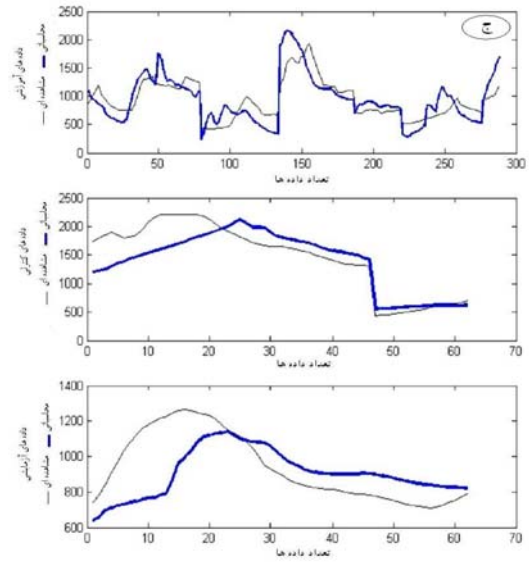
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- 11 - Clustering
- 12 - Curse Of Dimensionality



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- [1]- Stuber. M. , Gemmar. P., Greving. M.," Machine Supported Development Of Fuzzy – Flood Forecast Systems.", European Conference ON Advanced in Flood Research , Vol. 2, pages 504-515,November 2000.
- [2]- Baodung Liu. And Odanaka. T. , "Dynamic Fuzzy Criterion Model For Reservoir Operations and a Case Study.", Computer and Mathematics With Applications, 37 , 65-67 , 1999.
- [3]- Sincak, P., Bundzel, M., Sokac, M., Sztruhar, D. and Marsalek, J., "Urban runoff prediction by neural networks.", Proc. 3rd Int. Con. on Hydroinformatics, Copenhagen, pp 825-830., 1998.
- [4]- Khondker, M.-Ul-H., Wilson, G. and Klinting, A., "Application of neural networks in real time flash flood forecasting.", Proc. 3rd Int. Con. on Hydroinformatics, Copenhagen, pp 777-781., 1998.
- [5]- Minns, A.W. and Hall, M. J.," Artificial neural networks as rainfall-runoff models", Hydrological Sciences Journal, Vol. 41, No. 3, pp 399-417., 1996.
- [6]- Minns, A. W.," Modelling of 1-D pure advection processes using artificial neural networks.", Proc. 3rd Int. Con. on Hydroinformatics, Copenhagen, pp 805-812., 1998.
- [7]- Price, R. K., Samedov, J. N. and Solomatine, D. P., "An artificial neural network model of a generalized channel network.", Proc. 3rd Int. Con. on Hydroinformatics, Copenhagen, pp 813-818., 1998.
- [8]- Solomatine, D. P. and Torres, A. L., "Neural network approximation of a hydrodynamic model in optimizing reservoir operation.", Proc. 2nd Int. Con. on Hydroinformatics, Zurich, pp 201-206., 1996.
- [9]- Hasebe. M. and Nagayama. Y. , "Reservoir Operation Using The Neural Network and Fuzzy System For Dam Control and Operation Support",Elsevier, Advances in Engineering Software 33 (2002) 245-260, February 2002.
- [10] Fuzzy Logic Toolbox User's Guide, MATLAB software , version 2. ,1995-2002 by the MathWork Inc.

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