## Experimental investigation and comparative machine learning prediction of compressive strength of recycled aggregate concrete

S. Reza Salimbahrami
Mazandaran University, Iran

In this study, the idea of recycling the concrete wastes and reuse of them for reproduction of green concrete has been presented. Thus, we have tried to study mechanical parameters using recycled aggregate concrete. For this purpose, three mix designs including natural, recycled and recycled fiber concrete were tested. Moreover, at the end of the paper, estimation of compressive strength using ANN methods, has been presented. Based on the results, the recycled concrete and recycled fiber concrete with the proposed mix design, has a high compressive strength and due to relatively high porosity of the recycled aggregate concrete, its density has decreased by 2.48% and its water absorption increased by 54% compared to the natural concrete. Two artificial intelligence method of ANN and SVM benefit from a quite equal coefficient of consistency and the results of 124 test specimens with the results obtained from SVM are in a better agreement. Finally, two artificial intelligence methods were compared with the MLR using K-fold cross validation, indicating superior performance of the artificial intelligence.
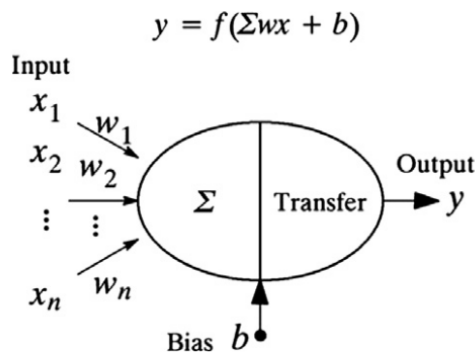
Biography

Seyed Reza Salimbahrami was born in Sari, Iran. He received the B.S. degree in civil engineering from Mazandaran University, Babolsar, Iran, the M.S. degree in structural engineering from Babol noshirvani University of Technology, Babol, Iran, and the Ph.D. degree in structural engineering from the Semnan University, Semnan, Iran. Since 2016 he has been with the Department of civil Engineering, Mazandaran Technical and Vocational University, where he is currently a Lecturer. He has authored or coauthored more than 20 papers to his credit published in national and international journals and presented in conferences and symposium, two Research projects and two books (in Persian) on steel structures. His main fields of research are steel structures, steel plate shear wall, Dampers, Seismic Analysis and Design of Structures.