

Supplementary Materials

Compressive Strength of Steel Fiber–Reinforced Concrete Employing Supervised Machine Learning Techniques

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Table S1. Dataset used for prediction.

Cement (kg/m ³)	Water (kg/m ³)	Sand (kg/m ³)	Coarse Aggregate (kg/m ³)	Superplastic izer (%)	Silica Fume (%)	Fly Ash (%)	Vf of the Hooked Steel Fiber (%)	Fiber Length (mm)	Fiber Dia (mm)	Compressive Strength MPa (28 days)	Refere nces
440	220	1225	366	3	0	0	0	0	0	46.6	1
440	220	1215	363	3.2	0	0	0.5	31	0.75	50.4	
440	220	1205	360	3.7	0	0	1	31	0.75	43.9	
440	220	1193	356	4	0	0	1.5	31	0.75	50.2	
360	180	738	1108	0.5	0	0	0	30	0.5	49.21	2
360	180	738	1108	0.5	0	0	0.5	30	0.5	39.14	
360	180	738	1108	0.5	0	0	1.5	30	0.5	40.77	
360	180	738	1108	0.5	0	0	2	30	0.5	40.61	
680	180	582	872	1.5	15	0	0	30	0.5	90.14	
680	180	582	872	1.5	15	0	0.5	30	0.5	90.76	
680	180	582	872	1.5	15	0	1.5	30	0.5	95.01	3
680	180	582	872	1.5	15	0	2	30	0.5	96.54	
400	242	663	1065	0	40	0	0.25	60	0.9	26.1	
400	242	663	1065	0	40	0	0.375	60	0.9	26.2	
400	242	663	1065	0	40	0	0.5	60	0.9	27	
400	198	663	1065	0	40	0	0.25	60	0.9	34.6	
400	198	663	1065	0	40	0	0.375	60	0.9	37.4	
400	198	663	1065	0	40	0	0.5	60	0.9	37.3	
400	165	663	1065	4.4	40	0	0.25	60	0.9	46.7	4
400	165	663	1065	4.4	40	0	0.375	60	0.9	48.7	
400	165	663	1065	4.4	40	0	0.5	60	0.9	48.2	
400	152	835	1047	0	0	0	0	0	0	32.4	
400	152	835	1047	0	0	0	0.5	40	0.615	33.4	
400	152	835	1047	0	0	0	1	40	0.615	37.3	
400	152	835	1047	0	0	0	0.5	60	0.75	34.1	
400	152	835	1047	0	0	0	1	60	0.75	38.5	
400	152	835	1047	0	5	0	0	0	0	36.4	
400	152	835	1047	0	5	0	0.5	40	0.615	38.3	
400	152	835	1047	0	5	0	1	40	0.615	48.1	
400	152	835	1047	0	5	0	0.5	60	0.75	41.4	
400	152	835	1047	0	5	0	1	60	0.75	45.7	
400	152	835	1047	0	10	0	0	0	0	56.2	
400	152	835	1047	0	10	0	0.5	40	0.615	60.4	
400	152	835	1047	0	10	0	1	40	0.615	66.9	
400	152	835	1047	0	10	0	0.5	60	0.75	59.7	5
400	152	835	1047	0	10	0	1	60	0.75	63.7	
400	152	835	1047	0	15	0	0	0	0	60.1	
400	152	835	1047	0	15	0	0.5	40	0.615	66.5	
400	152	835	1047	0	15	0	1	40	0.615	69.3	
400	152	835	1047	0	15	0	0.5	60	0.75	63.2	
400	152	835	1047	0	15	0	1	60	0.75	70.5	
520	172	725	853	0	10	0	0	0	0	99.2	
520	172	725	853	0	10	0	0	0	0	99.2	
512	169	714	841	0	10	0	1.5	60	0.75	98.7	
510	168	710	836	0	10	0	2	30	0.5	98.9	
510	168	710	836	0	10	0	2	60	0.75	95.3	
550	137.5	682	1050.5	0.25	0	0	0	40	0.62	85.5	6
550	137.5	682	1050.5	0.25	0	0	0.5	40	0.62	87.8	
550	137.5	682	1050.5	0.25	0	0	1	40	0.62	90.3	
550	137.5	682	1050.5	0.25	0	0	1.5	40	0.62	92.7	
550	137.5	682	1050.5	0.25	0	0	0.5	50	0.62	87	
550	137.5	682	1050.5	0.25	0	0	1	50	0.62	90.7	
550	137.5	682	1050.5	0.25	0	0	1.5	50	0.62	93	
550	137.5	682	1050.5	0.25	0	0	0.5	60	0.75	86.6	
550	137.5	682	1050.5	0.25	0	0	1	60	0.75	91.6	
550	137.5	682	1050.5	0.25	0	0	1.5	60	0.75	93.8	
450	157.5	715.5	1053	0.15	0	0	0	40	0.62	61.7	

450	157.5	715.5	1053	0.15	0	0	0.5	40	0.62	69.4	
450	157.5	715.5	1053	0.15	0	0	1	40	0.62	72.3	
450	157.5	715.5	1053	0.15	0	0	1.5	40	0.62	75.9	
450	157.5	715.5	1053	0.15	0	0	0.5	50	0.62	73.8	
450	157.5	715.5	1053	0.15	0	0	1	50	0.62	76.4	
450	157.5	715.5	1053	0.15	0	0	1.5	50	0.62	77.3	
450	157.5	715.5	1053	0.15	0	0	0.5	60	0.75	68	
450	157.5	715.5	1053	0.15	0	0	1	60	0.75	70.6	
450	157.5	715.5	1053	0.15	0	0	1.5	60	0.75	78.6	
350	157.5	798	1078	0.12	0	0	0	40	0.62	52.4	
350	157.5	798	1078	0.12	0	0	0.5	40	0.62	60.7	
350	157.5	798	1078	0.12	0	0	1	40	0.62	64.1	
350	157.5	798	1078	0.12	0	0	1.5	40	0.62	62.3	
350	157.5	798	1078	0.12	0	0	0.5	50	0.62	55.8	
350	157.5	798	1078	0.12	0	0	1	50	0.62	62.3	
350	157.5	798	1078	0.12	0	0	1.5	50	0.62	64.2	
350	157.5	798	1078	0.12	0	0	0.5	60	0.75	58.9	
350	157.5	798	1078	0.12	0	0	1	60	0.75	59.7	
350	157.5	798	1078	0.12	0	0	1.5	60	0.75	66.2	
360	180	738	1108	0.5	0	0	0	30	0.5	49.21	
360	180	738	1108	0.5	0	0	0.5	30	0.5	39.14	
360	180	738	1108	0.5	0	0	1	30	0.5	40.77	
360	180	738	1108	0.5	0	0	2	30	0.5	40.61	
680	180	582	872	1.5	15	0	0	30	0.5	90.14	7
680	180	582	872	1.5	15	0	0.5	30	0.5	90.76	
680	180	582	872	1.5	15	0	1	30	0.5	95.01	
680	180	582	872	1.5	15	0	2	30	0.5	96.54	
323	184	788	993	0	0	0	0	60	0.9	32.6	
323	184	788	993	0	0	0	1	60	0.9	33.7	
323	184	788	993	0	0	0	1.5	60	0.9	34.1	
323	184	788	993	0	0	0	2	60	0.9	37.4	
323	184	788	993	0	0	0	1	60	0.8	32.7	
323	184	788	993	0	0	0	1.5	60	0.8	36	8
323	184	788	993	0	0	0	2	60	0.8	33.5	
323	184	788	993	0	0	0	1	60	0.7	33.7	
323	184	788	993	0	0	0	1.5	60	0.7	36.9	
323	184	788	993	0	0	0	2	60	0.7	32.2	
400	220	1020	560	0	0	0	1	30.5	0.49	29.1	
400	220	1020	560	0	0	0	1.5	30.5	0.49	29.1	
400	220	1020	560	0	0	0	2	30.5	0.49	29.1	
400	220	1020	560	0	0	0	1	50.97	0.7	29.1	
400	220	1020	560	0	0	0	1.5	50.97	0.7	29.1	9
400	220	1020	560	0	0	0	2	50.97	0.7	29.1	
468	220	1008	449	0	0	0	1	30.5	0.49	51	
468	220	1008	449	0	0	0	1.5	30.5	0.49	51	
468	220	1008	449	0	0	0	2	30.5	0.49	51	
430	133	739	1052	9	43	0	0	35	0.55	85	
430	133	739	1052	9	43	0	0.5	35	0.55	91	
430	133	739	1052	9	43	0	1	35	0.55	95	10
430	133	739	1052	9	43	0	1.5	35	0.55	98	
430	133	739	1052	9	43	0	2	35	0.55	96	
666	200	900	540	0	0	0	0.5	30	0.5	58.2	
666	200	900	540	0	0	0	1	30	0.5	68.6	
666	200	900	540	0	0	0	1.5	30	0.5	63.6	
666	200	900	540	0	0	0	2	30	0.5	68.2	
666	200	900	540	0	0	0	0.5	30	0.5	64.5	11
666	200	900	540	0	0	0	1	30	0.5	63.2	
666	200	900	540	0	0	0	1.5	30	0.5	64.3	
666	200	900	540	0	0	0	2	30	0.5	65.4	
666	200	900	540	0	0	0	0.5	30	0.5	66.6	
666	200	900	540	0	0	0	1	30	0.5	67.1	

666	200	900	540	0	0	0	1.5	30	0.5	67.6	
666	200	900	540	0	0	0	2	30	0.5	65.5	
370	170	673	1150	0	0	0	0	60	0.75	45.3	
370	170	673	1150	0	0	0	0.5	60	0.75	47.7	
370	170	673	1150	0	0	0	0.76	60	0.75	52.1	
370	170	673	1150	0	0	0	1	60	0.75	52	
500	142	674	1100	2.5	0	0	0	60	0.75	72	12
500	142	674	1100	2.5	0	0	0.5	60	0.75	76.3	
500	142	674	1100	2.5	0	0	0.76	60	0.75	76.2	
500	142	674	1100	2.5	0	0	1	60	0.75	77.9	
540	270	1350	0	0.4	0	0	0	13	0.2	27.62	
540	270	1350	0	0.4	0	0	0.4	13	0.2	28.67	
540	270	1350	0	0.4	0	0	0.6	13	0.2	28.47	13
540	270	1350	0	0.4	0	0	0.8	13	0.2	29.16	
400	190	610	1130	0	0	0	0	30	0.54	29.8	
400	190	600	1120	0	0	0	0.5	30	0.54	30.5	
400	190	600	1110	0	0	0	1	30	0.54	31.2	
400	190	590	1110	0	0	0	1.5	30	0.54	32.3	
450	158	610	1140	2.85	0	0	0	30	0.54	56	
450	158	610	1130	2.85	0	0	0.5	30	0.54	57	
450	158	600	1120	2.85	0	0	1	30	0.54	57.8	14
450	158	600	1110	2.85	0	0	1.5	30	0.54	59.4	
450	140	630	1170	3.22	11.12	0	0	30	0.54	72.4	
450	140	625	1160	3.22	11.12	0	0.5	30	0.54	73.6	
450	140	620	1150	3.22	11.12	0	1	30	0.54	74.8	
450	140	615	1140	3.22	11.12	0	1.5	30	0.54	77	
372	160	750	1140	2.2	7.5	0	0	30	0.5	56.1	
372	160	750	1140	2.2	7.5	0	0.5	30	0.5	59.2	15
520	156	860	886	1	0	0	0	0	0	82.6	
468	156	847	873	1.1	10	0	0.25	60	0.75	92.3	
468	156	844	870	1.1	10	0	0.5	60	0.75	93.8	16
468	156	841	867	1.2	10	0	0.75	60	0.75	95	
468	156	838	863	1.2	10	0	1	60	0.75	98.7	
400	140	756	1135	1	0	0	0	35	0.55	77.1	
400	140	754	1131	1	0	0	0.25	35	0.55	79.4	
400	140	751	1127	1	0	0	0.5	35	0.55	78.2	
400	140	746	1119	1	0	0	1	35	0.55	80.5	
400	140	740	1111	1	0	0	1.5	35	0.55	81	
340	140	750	1124	1	0	15	0	35	0.55	67.8	
340	140	747	1120	1	0	15	0.25	35	0.55	69.4	
340	140	744	1116	1	0	15	0.5	35	0.55	68.3	17
340	140	739	1108	1	0	15	1	35	0.55	71.7	
340	140	734	1100	1	0	15	1.5	35	0.55	72.7	
280	140	742	1114	1	0	30	0	35	0.55	63.6	
280	140	740	1109	1	0	30	0.25	35	0.55	61.8	
280	140	737	1106	1	0	30	0.5	35	0.55	64.4	
280	140	732	1097	1	0	30	1	35	0.55	65	
280	140	726	1090	1	0	30	1.5	35	0.55	60.7	

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