

Supplementary Information

Automated Extraction of Synthesis Parameters of Pulsed Laser-Deposited Materials from Scientific Literature

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Table 1: F1 scores for the individual entities on the validation dataset for the individual epochs using the MatSciBERT architecture.

Epoch	Energy	Freq	Mat	O2 Pp	Substr	Temp	Wave Lt	Macro F1	Micro F1
1	0	0	40	33.64486	0	32.83582	0	0.152115	0.282178
2	86.66667	95.45455	73.29843	81.72043	41.17647	76.66667	76.19048	0.75882	0.767123
3	75.40984	100	62.9108	84.21053	43.24324	76.66667	80	0.746344	0.729335
4	83.87097	100	71.57895	88.17204	36.36364	75.86207	80	0.765497	0.765101
5	83.87097	100	68.68687	85.71429	35	76.66667	81.81818	0.759653	0.755408
6	86.15385	97.87234	66.66667	85.41667	20	77.04918	81.81818	0.735681	0.733119
7	90.625	97.87234	69.94536	89.13044	33.33333	77.31092	83.72093	0.774198	0.772881
8	90.625	100	66.66667	85.71429	27.77778	77.31092	80	0.754421	0.754153
9	87.5	100	70.65217	86.66667	25.64103	68.8	85	0.748943	0.748299
10	90.625	100	72.72727	86.95652	41.86047	76.66667	83.72093	0.789367	0.782178
11	87.5	100	69.14894	84.44444	30	77.31092	85.71429	0.763027	0.760611
12	90.625	100	69.43005	86.95652	28.57143	76.66667	83.72093	0.765672	0.763333
13	90.625	100	70.40816	86.02151	28.57143	76.66667	81.81818	0.763016	0.763636
14	90.625	100	70.76923	86.02151	29.26829	76.66667	83.72093	0.767245	0.767442
15	90.625	100	70.76923	86.02151	25	76.66667	83.72093	0.761148	0.765391

Table 2: F1 scores for the individual entities on the validation dataset for the individual epochs using the MatSciBERT -CRF architecture.

Epoch	Energy	Freq	Mat	O2 Pp	Substr	Temp	Wave Lt	Macro F1	Micro F1
1	43.24324	32.09877	65.84867	60.15038	33.33333	73.80952	65.88235	0.534809	0.605505
2	88.88889	98.92473	69.1358	75.94937	58.22785	78.125	83.16832	0.789171	0.770677
3	87.7193	98.92473	73.36449	77.01863	56.47059	84.21053	86.86869	0.806539	0.79058
4	80.99174	98.92473	73.81546	77.70701	54.54546	84.87805	84	0.792661	0.784549
5	90.09009	98.9011	76.29428	77.41936	60.97561	81.63265	84.78261	0.814422	0.802559
6	85.2459	98.92473	74.24242	77.98742	56.84211	84	82.35294	0.799422	0.788346
7	89.2562	98.92473	73.11828	75.64103	54.94506	84.87805	82.82828	0.799417	0.788039
8	85.95041	98.92473	73.82199	76.43312	55.81395	83.74384	80	0.792412	0.784656
9	89.2562	98.92473	75.26316	78.48101	54.73684	84.72906	82.69231	0.805833	0.797227
10	88.52459	98.92473	74.33155	77.70701	60	84.72906	82.82828	0.810065	0.799645
11	88.52459	98.92473	76.13941	78.48101	58.42697	81.15942	83.49515	0.807359	0.798253
12	88.52459	98.92473	75	76.43312	58.06452	84.72906	82.69231	0.80624	0.796491
13	86.17886	98.92473	76.43979	77.21519	55.55556	81.33971	84.31373	0.799954	0.793431
14	86.17886	98.92473	76.08696	77.21519	60	81.15942	84.31373	0.805541	0.795793
15	86.88525	98.92473	75.2	77.21519	56.17978	81.15942	84.31373	0.799826	0.790576

Table 3: F1 scores for the individual entities on the validation dataset for the individual epochs using the MatSciBERT -BiLSTM-CRF architecture.

Epoch	Energy	Freq	Mat	O2 Pp	Substr	Temp	Wave Lt	Macro F1	Micro F1
1	8.108108	7.792208	66.66667	15.95745	28.57143	16.04938	7.594937	0.215343	0.36413
2	84.29752	98.92473	73.51351	77.01863	51.06383	71.28713	79.61165	0.76531	0.755245
3	86.88525	98.92473	70.50691	77.30061	52.27273	83.41232	83.16832	0.789244	0.772277
4	85.71429	98.92473	72.01947	77.5	56.81818	83.49515	77.77778	0.788928	0.776846
5	90	98.92473	75.54348	79.24528	56.47059	80.97561	82.82828	0.805697	0.797166
6	86.61417	98.92473	73.60406	79.24528	53.7037	80.38278	78.89908	0.787677	0.775646
7	88.70968	96.77419	74.86911	77.5	54	82.85714	79.20792	0.791311	0.784615
8	90.90909	98.92473	73.62924	80	56.47059	83.25359	81.5534	0.806772	0.795494
9	90	98.92473	74.93404	78.26087	58.94737	82.17822	82.69231	0.808482	0.795494
10	90.16393	98.92473	73.17073	80	54.94506	82.75862	82.69231	0.803793	0.791594
11	89.43089	98.92473	73.19588	80	54.73684	83.90244	81.90476	0.802994	0.790419
12	88.70968	98.92473	72.48677	78.75	50.54945	83.90244	81.13208	0.792079	0.78306
13	88.70968	98.92473	72.72727	78.26087	53.33333	82.52427	82.69231	0.795961	0.783646
14	89.43089	96.77419	74.27056	77.5	53.93258	82.92683	82.69231	0.796468	0.788879
15	88.70968	98.92473	73.74005	78.75	56.17978	82.92683	82.69231	0.802748	0.791667