

APPENDIX

Table 3: Extended ablation results (encoder, loss, and architecture ablations).

Dataset	Context	H	PRISM		Tree-level 1		MLP		No recon loss		No residuals		All residuals	
			MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE
ETTh1	336	96	0.355	0.374	0.373	0.401	0.368	0.388	0.375	0.402	0.361	0.392	0.387	0.409
ETTh1	336	192	0.390	0.405	0.413	0.422	0.409	0.418	0.425	0.431	0.409	0.420	0.434	0.436
ETTh1	336	336	0.386	0.412	0.413	0.435	0.404	0.424	0.429	0.442	0.406	0.427	0.438	0.446
ETTh1	336	720	0.421	0.445	0.466	0.476	0.449	0.461	0.464	0.474	0.464	0.475	0.514	0.502
ETTh2	336	96	0.267	0.322	0.273	0.335	0.281	0.341	0.278	0.343	0.267	0.331	0.282	0.345
ETTh2	336	192	0.311	0.359	0.325	0.370	0.332	0.376	0.338	0.382	0.324	0.370	0.330	0.381
ETTh2	336	336	0.318	0.364	0.335	0.385	0.338	0.385	0.337	0.393	0.325	0.382	0.339	0.391
ETTh2	336	720	0.390	0.421	0.403	0.437	0.408	0.435	0.414	0.443	0.401	0.435	0.410	0.443
ETTh1	336	96	0.288	0.321	0.293	0.347	0.292	0.347	0.295	0.349	0.294	0.345	0.303	0.356
ETTh1	336	192	0.325	0.359	0.335	0.369	0.341	0.372	0.333	0.371	0.332	0.370	0.340	0.376
ETTh1	336	336	0.358	0.379	0.363	0.389	0.371	0.391	0.367	0.392	0.364	0.390	0.375	0.398
ETTh1	336	720	0.410	0.419	0.426	0.423	0.428	0.426	0.431	0.425	0.427	0.423	0.433	0.430
ETTh2	336	96	0.158	0.234	0.182	0.272	0.177	0.263	0.167	0.245	0.169	0.260	0.176	0.268
ETTh2	336	192	0.214	0.267	0.258	0.375	0.234	0.305	0.232	0.305	0.227	0.300	0.225	0.299
ETTh2	336	336	0.264	0.327	0.288	0.340	0.291	0.339	0.285	0.332	0.280	0.334	0.294	0.343
ETTh2	336	720	0.360	0.383	0.361	0.385	0.364	0.386	0.370	0.396	0.361	0.386	0.370	0.392
Exchange	336	96	0.081	0.198	0.088	0.210	0.186	0.320	0.086	0.209	0.088	0.213	0.087	0.210
Exchange	336	192	0.176	0.297	0.177	0.303	0.506	0.544	0.179	0.304	0.188	0.315	0.180	0.303
Exchange	336	336	0.314	0.396	0.344	0.427	0.998	0.775	0.347	0.429	0.341	0.424	0.336	0.427
Exchange	336	720	0.712	0.606	0.968	0.756	1.673	1.027	0.905	0.701	0.939	0.734	0.901	0.709
Weather	336	96	0.140	0.177	0.157	0.206	0.155	0.220	0.158	0.208	0.156	0.205	0.159	0.210
Weather	336	192	0.187	0.227	0.201	0.248	0.205	0.255	0.202	0.248	0.202	0.249	0.202	0.249
Weather	336	336	0.234	0.266	0.252	0.286	0.260	0.293	0.252	0.288	0.252	0.288	0.253	0.287
Weather	336	720	0.302	0.311	0.324	0.339	0.327	0.343	0.323	0.339	0.326	0.339	0.323	0.336
Mean			0.307	0.345	0.334	0.372	0.408	0.410	0.333	0.369	0.329	0.367	0.337	0.373
Difference					-8.83%	-7.92%	-32.94%	-18.78%	-8.46%	-6.87%	-7.23%	-6.35%	-9.80%	-8.04%

Table 4: Extended ablation results (frequency filter ablations).

Dataset	Context	H	PRISM		Binomial pyramid		FFT		EMA		MCD		DoG		Learnable filters	
			MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE
ETTh1	336	96	0.355	0.374	0.369	0.395	0.383	0.406	0.375	0.398	0.377	0.403	0.380	0.406	0.373	0.397
ETTh1	336	192	0.390	0.405	0.413	0.422	0.425	0.431	0.402	0.412	0.416	0.424	0.424	0.429	0.420	0.425
ETTh1	336	336	0.386	0.412	0.411	0.432	0.425	0.441	0.397	0.422	0.392	0.418	0.427	0.439	0.413	0.433
ETTh1	336	720	0.421	0.445	0.473	0.479	0.944	0.681	0.467	0.472	0.453	0.461	0.490	0.491	0.466	0.475
ETTh2	336	96	0.267	0.322	0.281	0.344	0.270	0.331	0.274	0.339	0.275	0.338	0.282	0.343	0.273	0.338
ETTh2	336	192	0.311	0.359	0.335	0.380	0.360	0.391	0.331	0.377	0.345	0.390	0.336	0.380	0.327	0.369
ETTh2	336	336	0.318	0.364	0.337	0.393	0.336	0.392	0.314	0.373	0.317	0.376	0.337	0.391	0.325	0.382
ETTh2	336	720	0.390	0.421	0.413	0.445	0.407	0.441	0.390	0.428	0.399	0.437	0.406	0.437	0.406	0.439
ETTh1	336	96	0.288	0.321	0.302	0.358	0.295	0.348	0.289	0.345	0.298	0.353	0.296	0.349	0.303	0.356
ETTh1	336	192	0.325	0.359	0.338	0.374	0.333	0.369	0.329	0.367	0.334	0.374	0.334	0.365	0.343	0.377
ETTh1	336	336	0.358	0.379	0.371	0.396	0.365	0.388	0.364	0.389	0.366	0.392	0.369	0.393	0.364	0.390
ETTh1	336	720	0.410	0.419	0.430	0.427	0.435	0.432	0.423	0.423	0.420	0.425	0.426	0.423	0.426	0.422
ETTh2	336	96	0.158	0.234	0.176	0.265	0.177	0.270	0.172	0.262	0.173	0.263	0.172	0.263	0.171	0.261
ETTh2	336	192	0.214	0.267	0.235	0.306	0.235	0.306	0.227	0.301	0.233	0.306	0.232	0.304	0.234	0.307
ETTh2	336	336	0.264	0.327	0.291	0.342	0.291	0.344	0.283	0.338	0.286	0.341	0.285	0.340	0.287	0.339
ETTh2	336	720	0.360	0.383	0.368	0.391	0.369	0.393	0.361	0.385	0.363	0.387	0.364	0.390	0.363	0.387
Exchange	336	96	0.081	0.198	0.094	0.215	0.093	0.217	0.092	0.215	0.093	0.217	0.097	0.224	0.099	0.223
Exchange	336	192	0.176	0.297	0.179	0.307	0.217	0.335	0.187	0.311	0.180	0.308	0.212	0.331	0.195	0.322
Exchange	336	336	0.314	0.396	0.355	0.436	0.336	0.421	0.507	0.541	0.323	0.410	0.367	0.445	0.329	0.421
Exchange	336	720	0.712	0.606	0.754	0.616	0.787	0.633	0.792	0.634	0.784	0.651	0.759	0.620	0.973	0.753
Weather	336	96	0.140	0.177	0.163	0.212	0.162	0.212	0.161	0.210	0.155	0.206	0.166	0.216	0.152	0.202
Weather	336	192	0.187	0.227	0.207	0.252	0.208	0.254	0.212	0.260	0.196	0.243	0.203	0.250	0.197	0.242
Weather	336	336	0.234	0.266	0.245	0.286	0.246	0.287	0.245	0.285	0.252	0.286	0.246	0.287	0.247	0.281
Weather	336	720	0.302	0.311	0.326	0.339	0.325	0.339	0.323	0.336	0.323	0.336	0.333	0.337	0.314	0.330
Mean			0.307	0.345	0.328	0.367	0.351	0.378	0.330	0.368	0.323	0.364	0.331	0.369	0.333	0.370
Difference					-6.73%	-6.41%	-14.32%	-9.43%	-7.45%	-6.56%	-5.23%	-5.62%	-7.79%	-6.92%	-8.56%	-7.14%

Table 5: Extended ablation results (importance scoring ablations).

Dataset	Context	H	PRISM		No MLP		No shared weights		All shared weights		Learned thresholds	
			MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE	MSE	MAE
ETTh1	336	96	0.355	0.374	0.384	0.414	0.363	0.393	0.361	0.392	0.501	0.476
ETTh1	336	192	0.390	0.405	0.421	0.432	0.409	0.419	0.408	0.419	0.422	0.433
ETTh1	336	336	0.386	0.412	0.420	0.441	0.405	0.427	0.408	0.430	0.420	0.441
ETTh1	336	720	0.421	0.445	0.466	0.475	0.465	0.474	0.466	0.474	0.466	0.475
ETTh2	336	96	0.267	0.322	0.275	0.337	0.267	0.331	0.268	0.331	0.301	0.359
ETTh2	336	192	0.311	0.359	0.330	0.371	0.324	0.380	0.326	0.370	0.327	0.372
ETTh2	336	336	0.318	0.364	0.328	0.382	0.335	0.381	0.325	0.381	0.328	0.382
ETTh2	336	720	0.390	0.421	0.404	0.437	0.407	0.441	0.401	0.434	0.401	0.435
ETTh1	336	96	0.288	0.321	0.299	0.352	0.295	0.349	0.294	0.348	0.314	0.364
ETTh1	336	192	0.325	0.359	0.336	0.373	0.331	0.369	0.339	0.369	0.335	0.373
ETTh1	336	336	0.358	0.379	0.367	0.393	0.364	0.389	0.366	0.389	0.367	0.393
ETTh1	336	720	0.410	0.419	0.428	0.425	0.428	0.422	0.426	0.422	0.429	0.427
ETTh2	336	96	0.158	0.234	0.178	0.267	0.168	0.261	0.168	0.261	0.178	0.267
ETTh2	336	192	0.214	0.267	0.234	0.308	0.226	0.300	0.227	0.299	0.234	0.304
ETTh2	336	336	0.264	0.327	0.287	0.342	0.282	0.336	0.281	0.336	0.288	0.341
ETTh2	336	720	0.360	0.383	0.370	0.395	0.361	0.386	0.361	0.387	0.366	0.387
Exchange	336	96	0.081	0.198	0.087	0.210	0.082	0.205	0.086	0.209	0.089	0.212
Exchange	336	192	0.176	0.297	0.181	0.390	0.175	0.302	0.180	0.308	0.189	0.314
Exchange	336	336	0.314	0.396	0.327	0.420	0.314	0.405	0.338	0.424	0.340	0.428
Exchange	336	720	0.712	0.606	0.916	0.719	0.783	0.632	0.918	0.717	0.886	0.704
Weather	336	96	0.140	0.177	0.159	0.209	0.154	0.204	0.159	0.210	0.161	0.207
Weather	336	192	0.187	0.227	0.202	0.245	0.199	0.246	0.202	0.249	0.201	0.247
Weather	336	336	0.234	0.266	0.252	0.290	0.250	0.287	0.252	0.288	0.242	0.283
Weather	336	720	0.302	0.311	0.322	0.336	0.326	0.393	0.325	0.392	0.321	0.337
Mean			0.307	0.345	0.332	0.373	0.321	0.364	0.329	0.368	0.338	0.373
Difference					-8.21%	-8.25%	-4.66%	-5.46%	-7.01%	-6.73%	-10.01%	-8.22%