Supplementary Material for the Rebuttal of ReCTSi

1 RESPONSE TO REVIEWER COMMENTS

- **Reviewer ZyK6**:
  - Section 2 for Responses to Q1/Q2/W1/W2/W3.
  - Section 5 for Responses to Q3/W4.
- **Reviewer CKLx**:
  - Section 6 for Response to W1.
- **Reviewer aibo**:
  - Section 5 for Responses to Q3/W2.
  - Section 7 for Response to Q4.
  - Section 3 for Responses to Q6/W1.
- **Reviewer zG18**:
  - Section 3 for Response to Q2.
  - Section 5 for Response to Q4.
- **Reviewer SHxM**:
  - Section 4 for Response to Q1.
  - Section 3 for Response to Q2.
  - Section 6 for Response to Q4.
  - Section 5 for Response to W1.
- **Reviewer 5DVn**:
  - Section 7 for Response to Q2.
  - Section 2 for Response to Q3.

2 ADDITIONAL STUDY OF PRISTI AND RECTSI VARIANTS

Table 1 presents the additional study of PriSTi and ReCTSi Variants for Responses to **Reviewer ZyK6** and **Reviewer 5DVn**.

Table 1: Additional Studies of PriSTi and ReCTSi Variants on the AQ36 dataset.

Model	FLOPs (M)	Params (K)	Peak Mem (MB)	Latency (ms)	MAE	MSE	MRE
PriSTi	391	731	71.36	8267	**17.384**	**976.875**	**0.219**
ReCTSi-TST	0.32	98	43.29	8.32	36.571	2850.463	0.434
ReCTSi-Informer	**0.03**	**47**	**3.96**	**1.01**	26.582	1850.588	0.356
ReCTSi	0.06	76	7.07	1.26	19.483	1102.159	0.261

3 ADDITIONAL HYPERPARAMETER SENSITIVITY STUDY

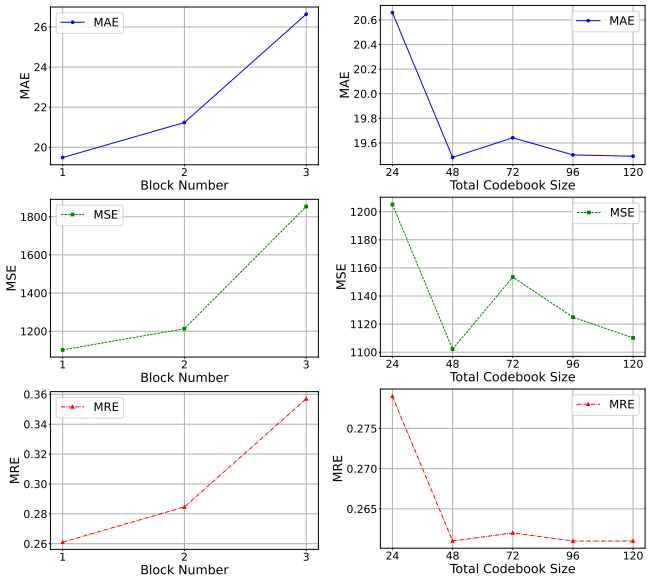
Figure 1 presents the additional hyperparameter sensitivity study for Responses to **Reviewer aibo**, **Reviewer zG18**, and **Reviewer SHxM**.

4 SCALABILITY STUDY

Table 2 presents the scalability study for Response to **Reviewer SHxM**.

5 STUDY OF THE IMPACT OF VARYING MISSING RATES

Figures 2, 3, and 4 present the study of the impact of varying missing rates for Responses to **Reviewer ZyK6**, **Reviewer zG18**, and **Reviewer SHxM**.



(a) CaA Block Number **(b) Total Codebook Sizes**

Figure 1: Additional Hyperparameter Studies on AQ36.

Table 2: Comparison of Results on AQ36 and AQ437 Datasets

Dataset	AQ36			AQ437		
Model	MAE	MSE	MRE	MAE	MSE	MRE
MEAN	62.299	6525.709	0.835	62.538	6553.716	0.844
MF	39.582	4545.596	0.531	41.720	4649.581	0.549
MICE	38.889	4314.435	0.521	40.659	4540.523	0.540
BRITS	23.393	1276.226	0.314	29.582	2104.346	0.402
PoGeVon*	19.581	1238.820	0.262	-	-	-
ReCTSi	**19.483**	**1102.159**	**0.261**	**23.574**	**1528.774**	**0.322**

*PoGeVon failed to work: Out-of-Memory on the AQ437 dataset.

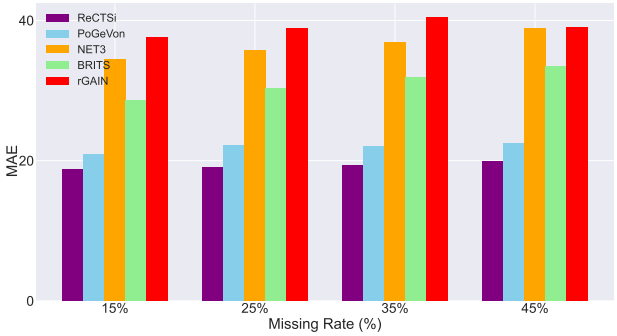


Figure 2: Study of different masking rates on PeMS-BA.

6 EXPLANATIONS OF DIFFERENT CTS PATTERNS

Table 3 presents the explanations of different CTS patterns for Responses to **Reviewer CKLx**, **Reviewer aibo**, and **Reviewer SHxM**.

Table 3: CTS Patterns: Characteristics and Practical Meanings

	Persistent		Transient	
Pattern Type	**Characteristics**	**Practical Meaning**	**Characteristics**	**Practical Meaning**
Temporal	Recurring time-related features.	Predictability over time, facilitating forecasting.	Non-recurring, event-driven spikes.	Anomaly detection and real-time adjustments.
Spatial	Stable, long-term inter-series relationships.	Spatial analysis and environmental planning.	Temporary alterations in spatial relationships.	Emergency response and short-term planning.
Spatio-temporal	Stability across both time and space.	Forecasting complex phenomena like congestion spreading.	Variability across time and space.	Understanding dynamic changes, such as traffic alterations due to roadwork.

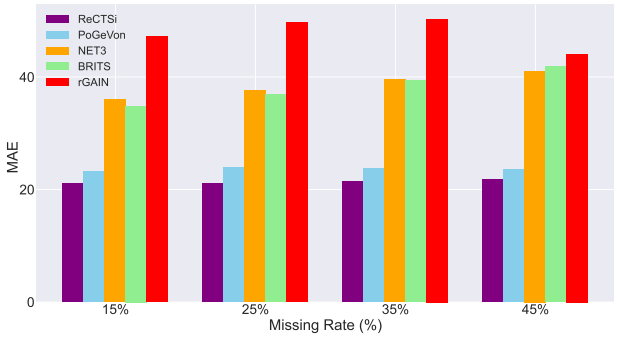


Figure 3: Study of different masking rates on PeMS-LA.

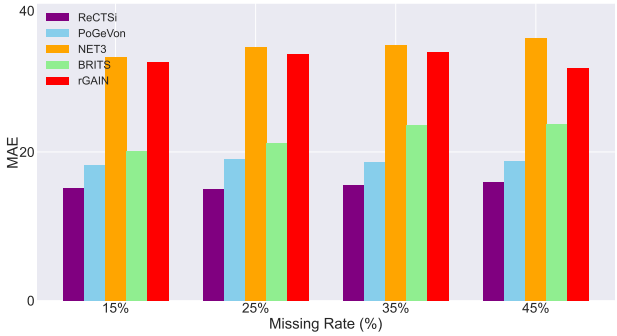


Figure 4: Study of different masking rates on PeMS-SD.

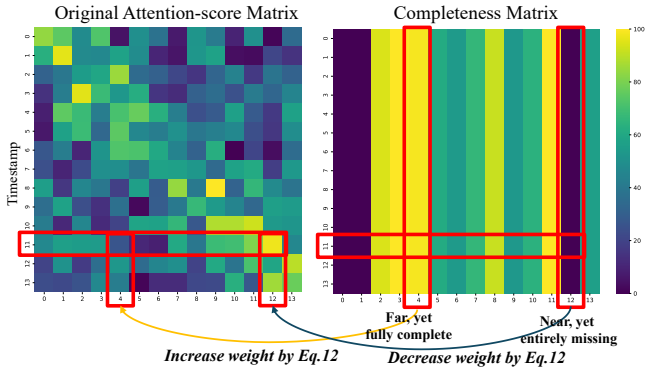


Figure 5: Visualizations of the CaA Mechanism.

7 VISUALIZATIONS OF THE CAA MECHANISM

Figure 5 presents the visualizations of the CaA mechanism for Responses to **Reviewer aibo** and **Reviewer 5DVn**.