

模型：

1. 决策树 (**default\_tree\_learner**)
2. 加惩罚的linear model (**default\_linear\_learner**)
3. **lasso\_learner**
4. kernel ridge model (**kernel\_ridge\_learner**)
5. suppor vecor regrssion (**linear\_svr\_learner**)
6. reservoir computing+penalized linear model (**esn\_ridge\_learner**)
7. reservoir computing+kernel ridge model (**esn\_kernel\_ridge\_learner**)
8. reservoir computing+suppor vecor regrssion (**esn\_linear\_svr\_learner**)

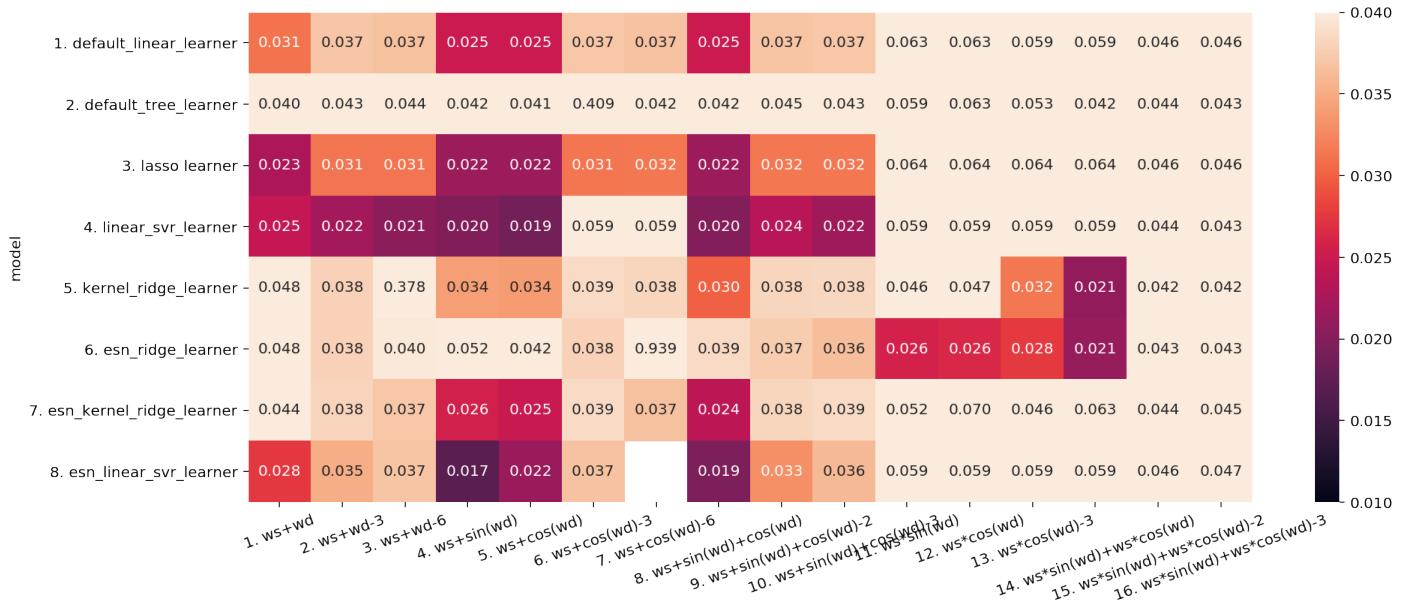
输入：

1. ws wd (t)	2. ws wd (t) ws wd wp (t-1) ... ws wd wp (t-3)	3. ws wd (t) ws wd wp (t-1) ... ws wd wp (t-6)	4. ws sin(wd) (t)
5. ws cos(wd) (t)	6. ws cos(wd) (t) ws cos(wd) wp (t-1) ... ws cos(wd) wp (t-3)	7. ws cos(wd) (t) ws cos(wd) wp (t-1) ... ws cos(wd) wp (t-6)	8. ws sin(wd) cos(wd) (t)
9. ws sin(wd) cos(wd) (t) ws sin(wd) cos(wd) wp (t-1) ws sin(wd) cos(wd) wp (t-2)	10. ws sin(wd) cos(wd) (t) ws sin(wd) cos(wd) wp (t-1) ... ws sin(wd) cos(wd) wp (t-3)	11. ws*sin(wd) (t)	12. ws*cos(wd) (t)
13. ws*cos(wd) (t) ws*cos(wd) wp (t-1) ... ws*cos(wd) wp (t-3)	14. ws*sin(wd) (t) ws*cos(wd) (t)	15. ws*sin(wd) (t) ws*cos(wd) (t) ws*sin(wd) wp (t-1) ws*cos(wd) wp (t-1) ws*sin(wd) wp (t-2) ws*cos(wd) wp (t-2)	16. ws*sin(wd) (t) ws*cos(wd) (t) ws*sin(wd) wp (t-1) ws*cos(wd) wp (t-1) ... ws*sin(wd) wp (t-3) ws*cos(wd) wp (t-3)

输出： wp (t)

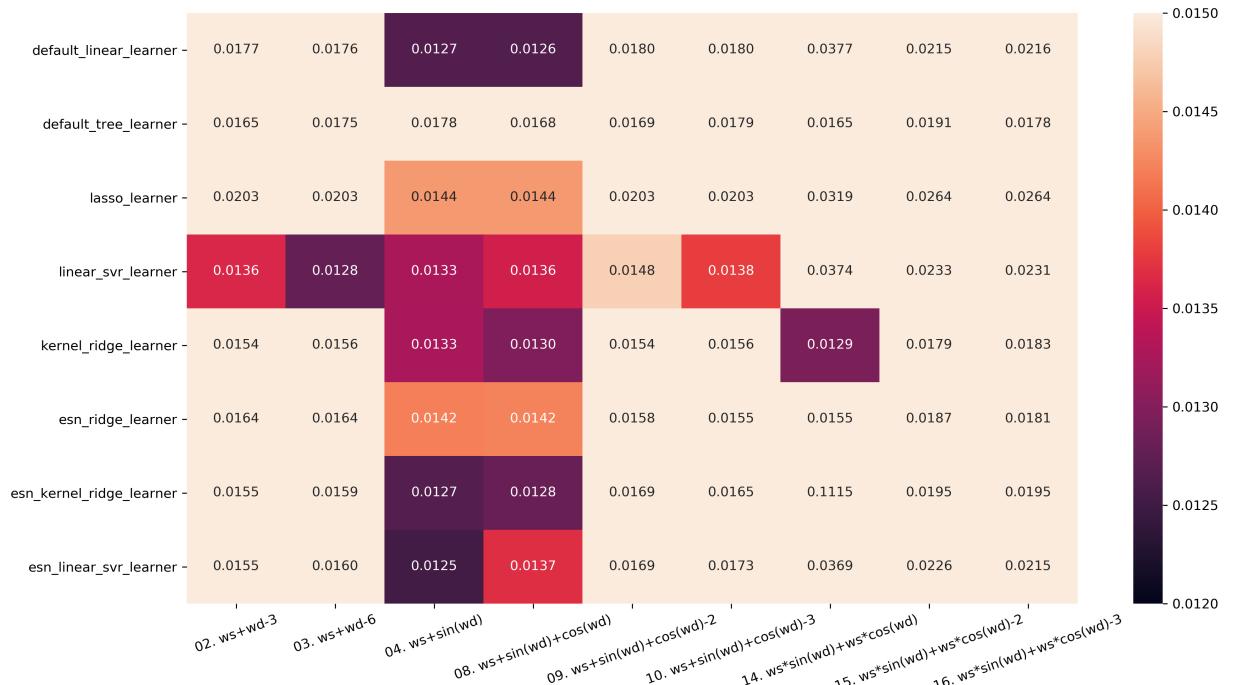
**train:** [ 6426 , 10427 ] len: 4001

**test:** [ 14389 , 17872 ] len: 3483

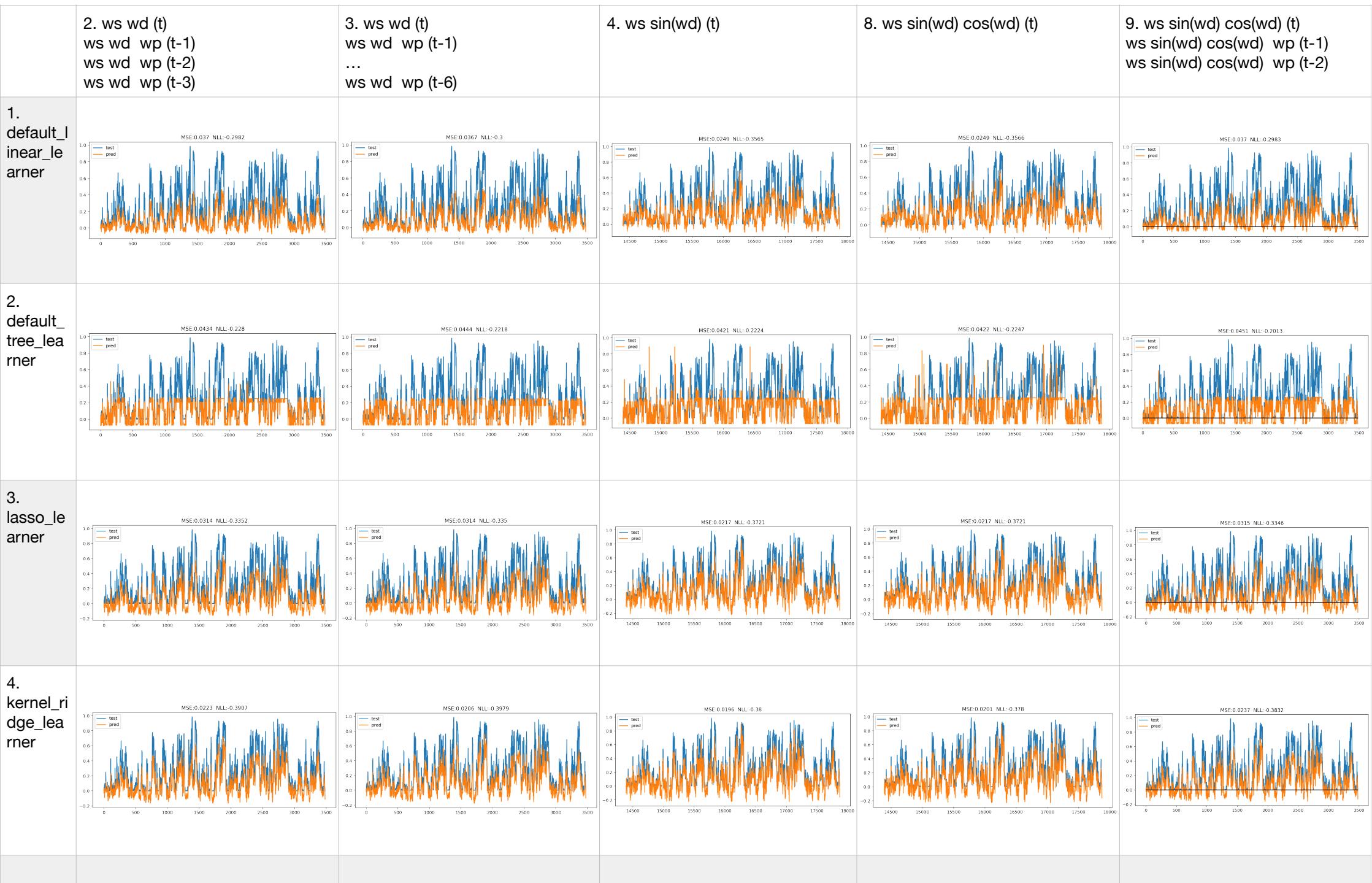


**train:** [ 6426 , 10427 ] len: 4001

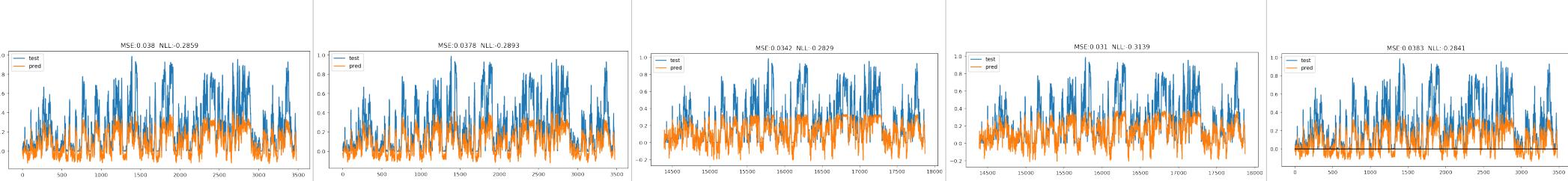
**test:** [ 14389 , 15388 ] len: 1000



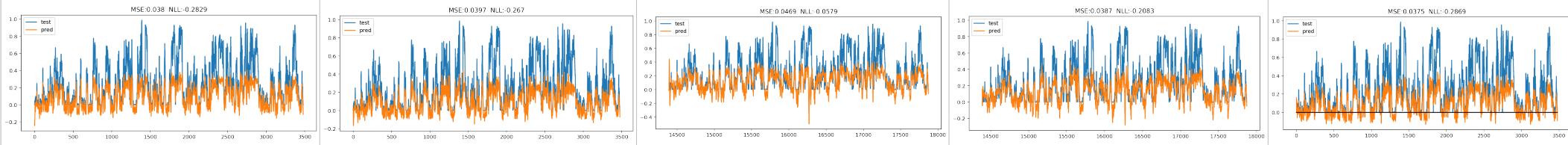
PS: 后面的图片中 MSE 与 NNL 的 test 长度为 3483



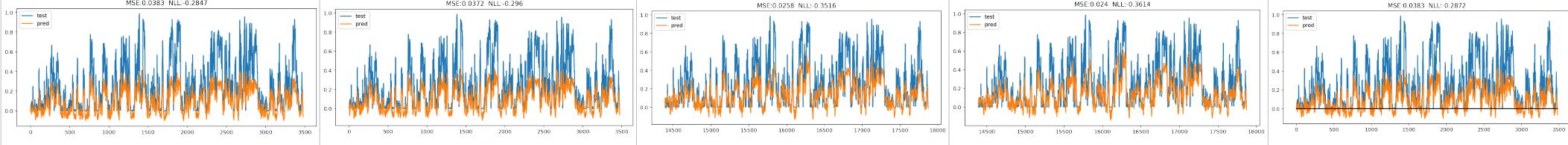
5.  
linear\_s  
vr\_learne  
r



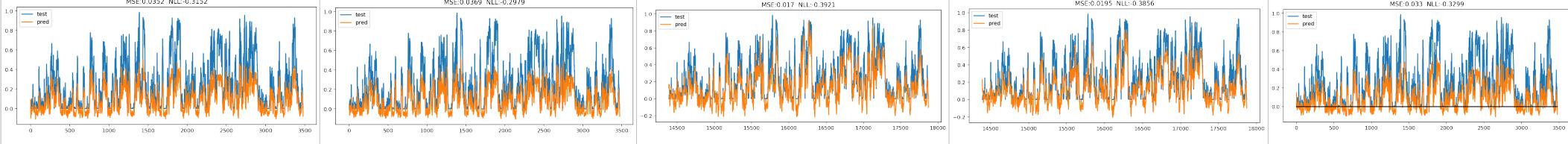
6.  
esn\_ridg  
e\_learne  
r

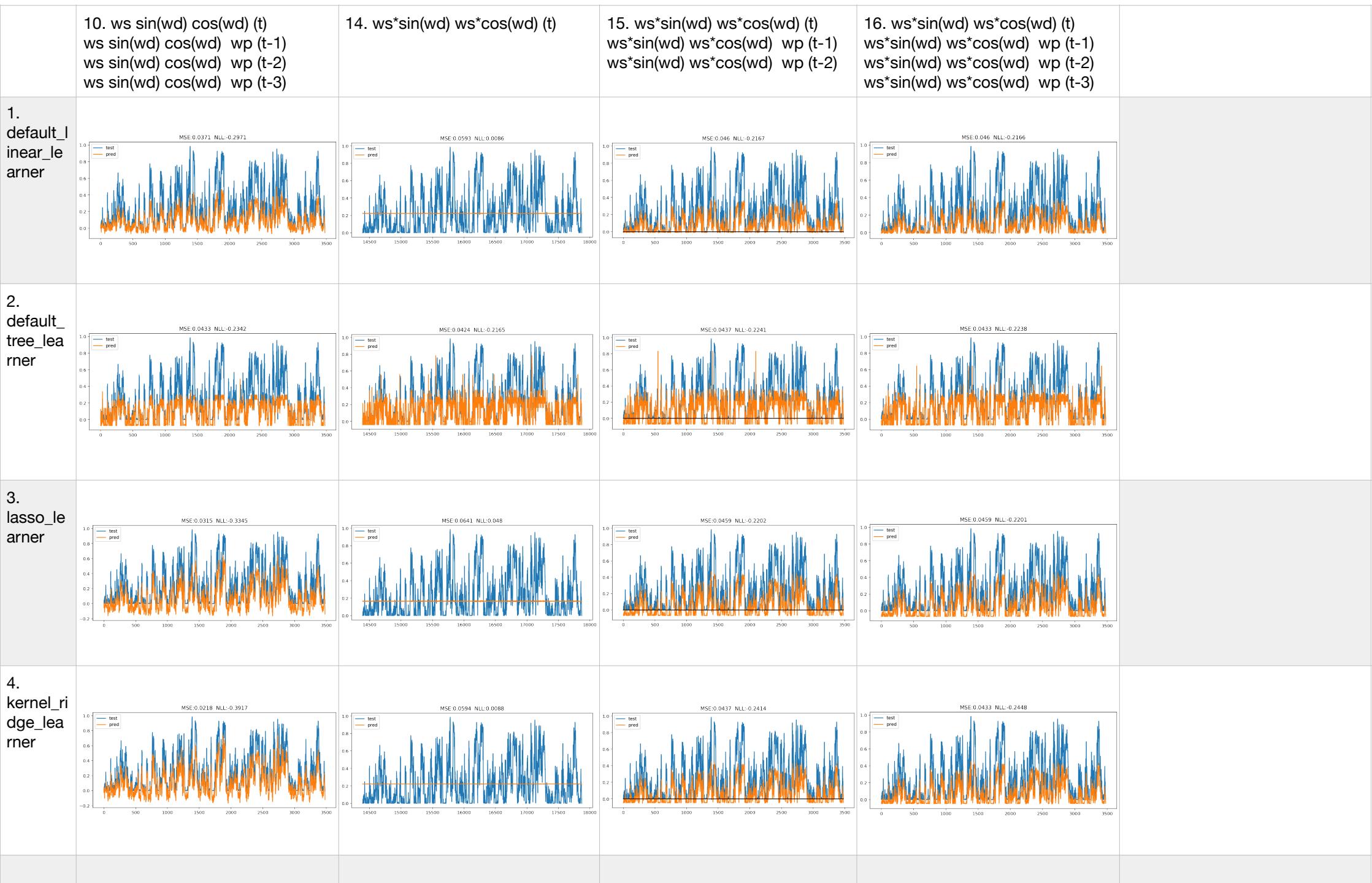


7.  
esn\_ker  
nel\_ridg  
e\_learne  
r

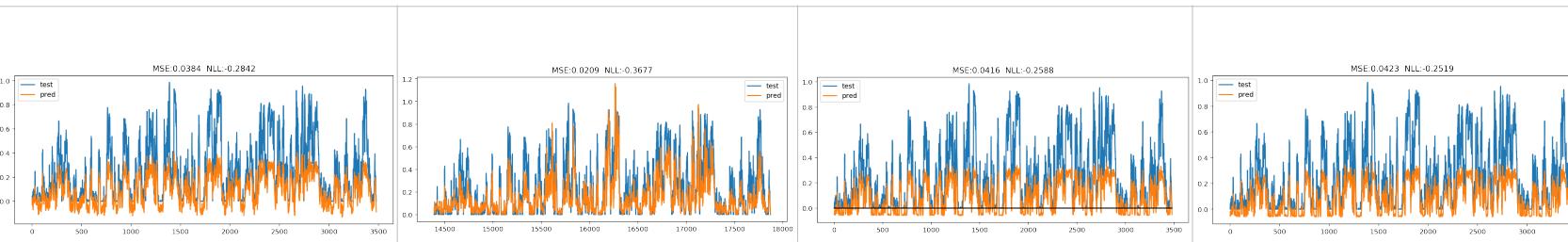


8.  
esn\_line  
ar\_svr\_l  
earner

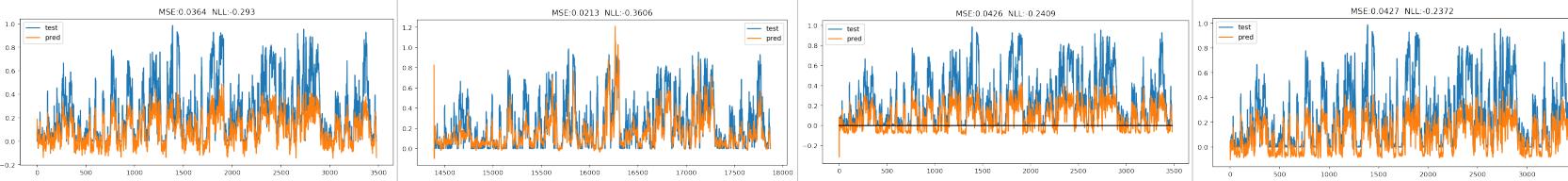




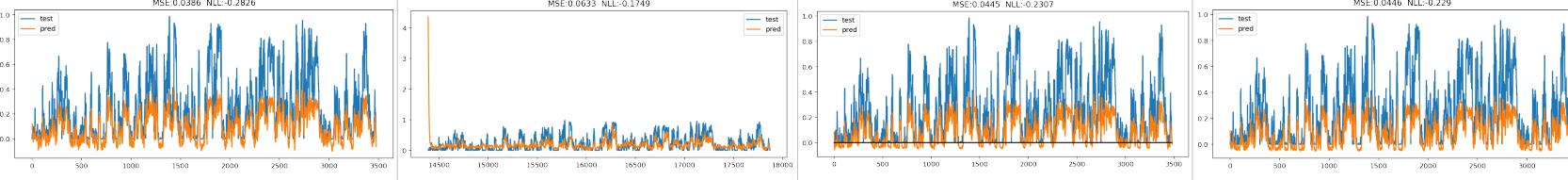
5.  
linear\_s  
vr\_learne  
r



6.  
esn\_ridg  
e\_learne  
r



7.  
esn\_ker  
nel\_ridg  
e\_learne  
r



8.  
esn\_line  
ar\_svr\_l  
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