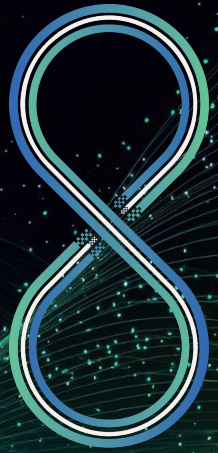
AI Cup Introduction Workshop



AI Cup 2026

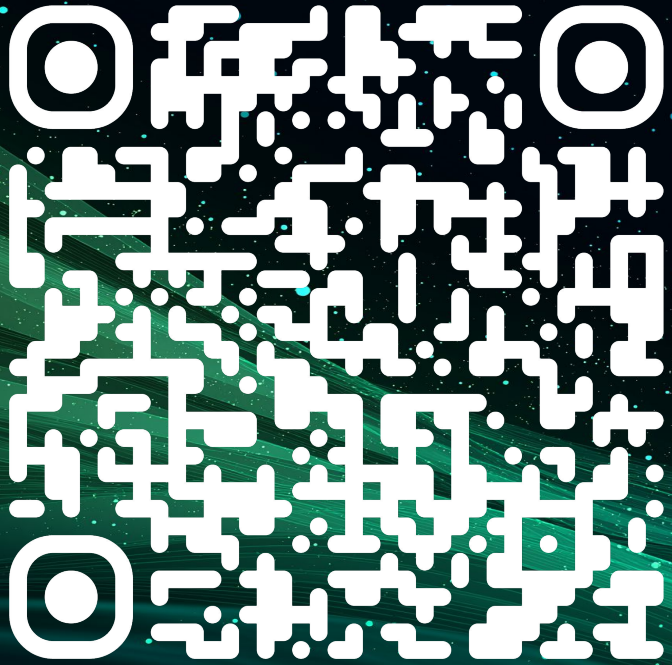
POWERED BY

AIC4NL | Epoch

AIC4NL | Epoch

Agenda

- Exploring Kaggle
- From zero to trained model
- Finishing touches
- Future improvements

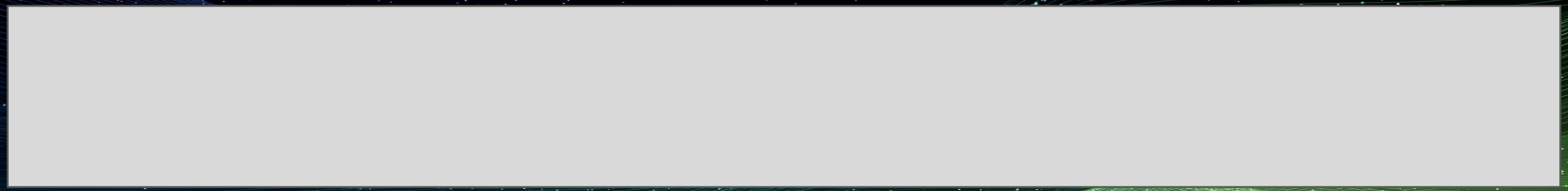


Scan to join!

kaggle

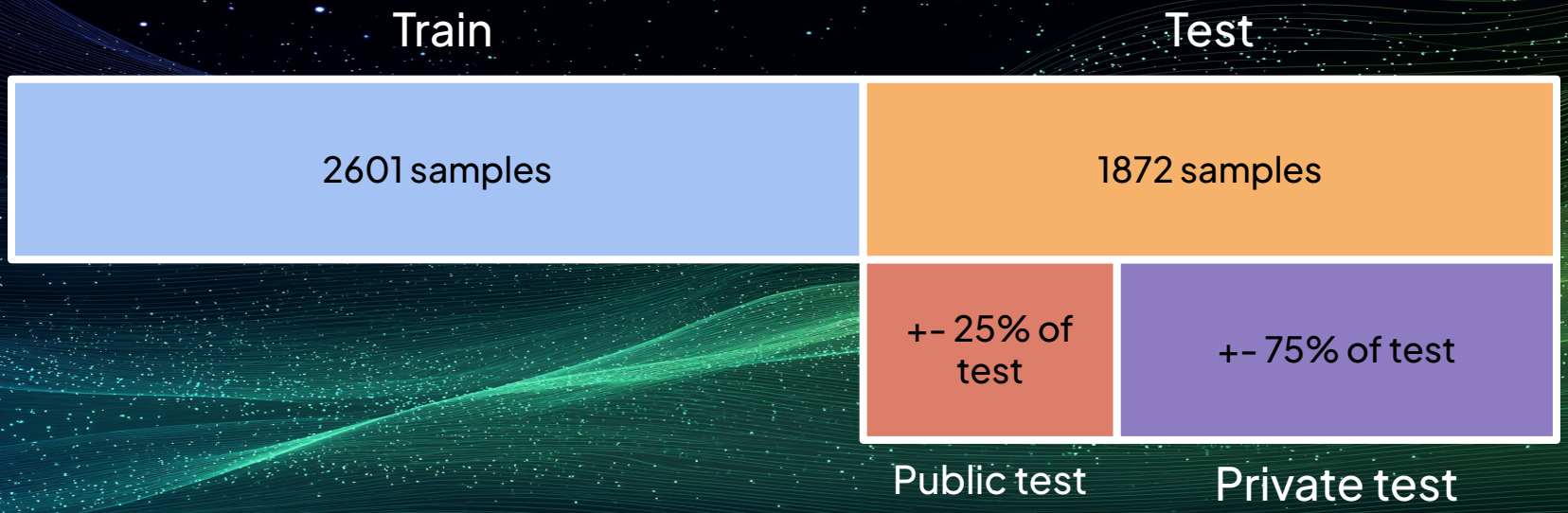
Train / Test split

Entire dataset: 4473 samples

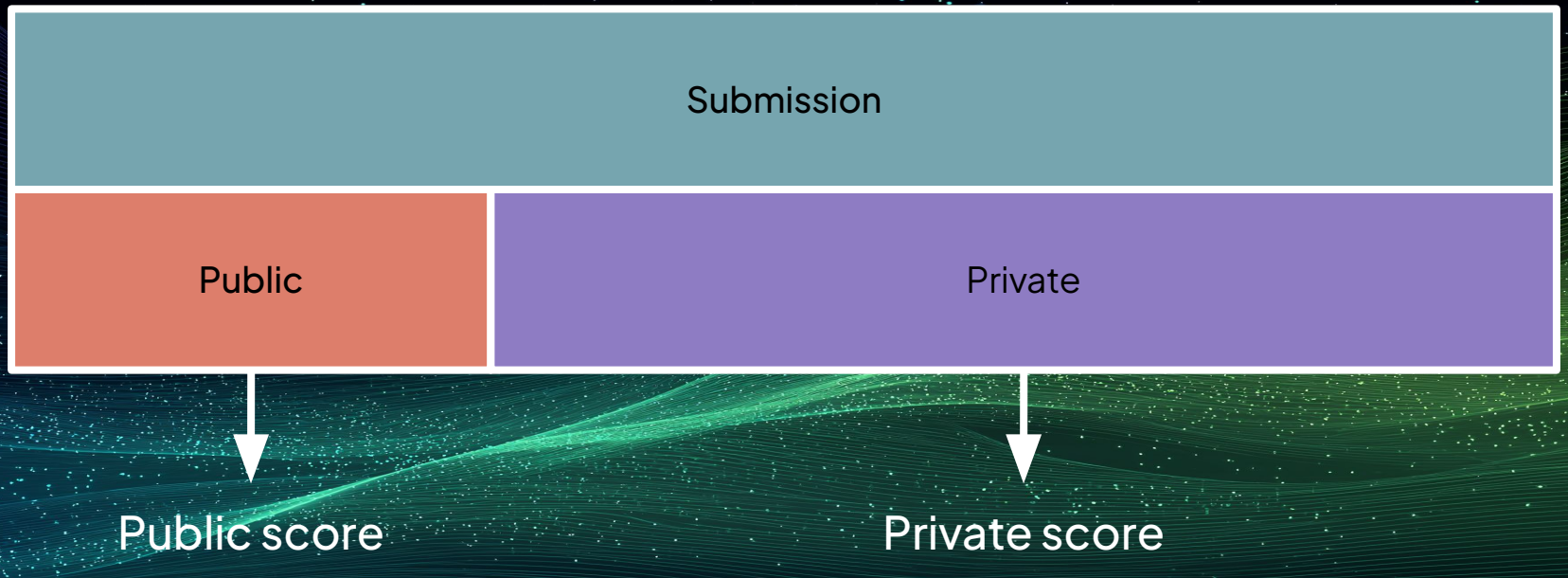


Train / Test split

Train / Test split



Train / Test split



Train / Test split

Public leaderboard

149	mytm		0.73489	92	12d
150	Epoch VI		0.73462	265	12d

Your Best Entry!
Your most recent submission scored 0.73097, which is not an improvement of your previous score. Keep trying!

151	Zhengkang Mei		0.73450	174	12d
152	Mahmoud Elshahed		0.73449	24	11d

Private leaderboard

254	▲ 184	ydi		0.61356	60	13d
255	▼ 105	Epoch VI		0.61354	265	12d

You won a bronze medal!
Your team placed 255th out of 3802 teams.

View Certificate

256	▲ 198	turtle		0.61353	6	12d
257	▲ 742	vamos_field		0.61352	44	20d

Back to kaggle!

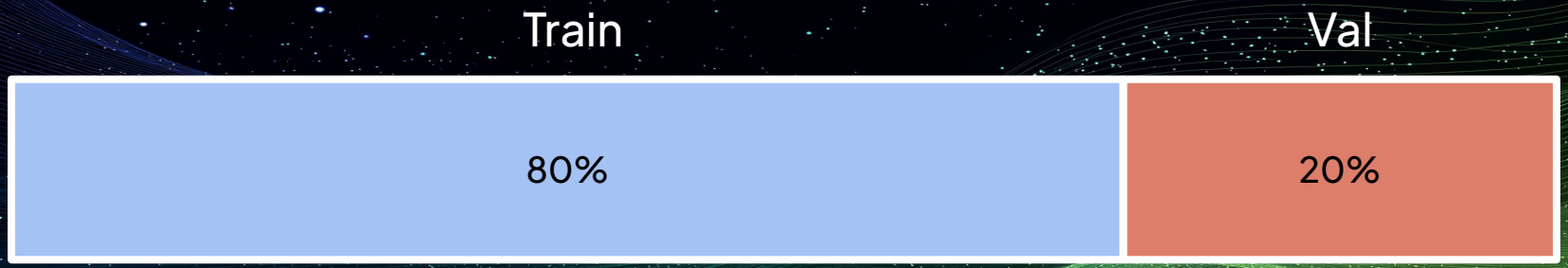
Cross Validation

Cross Validation

Train

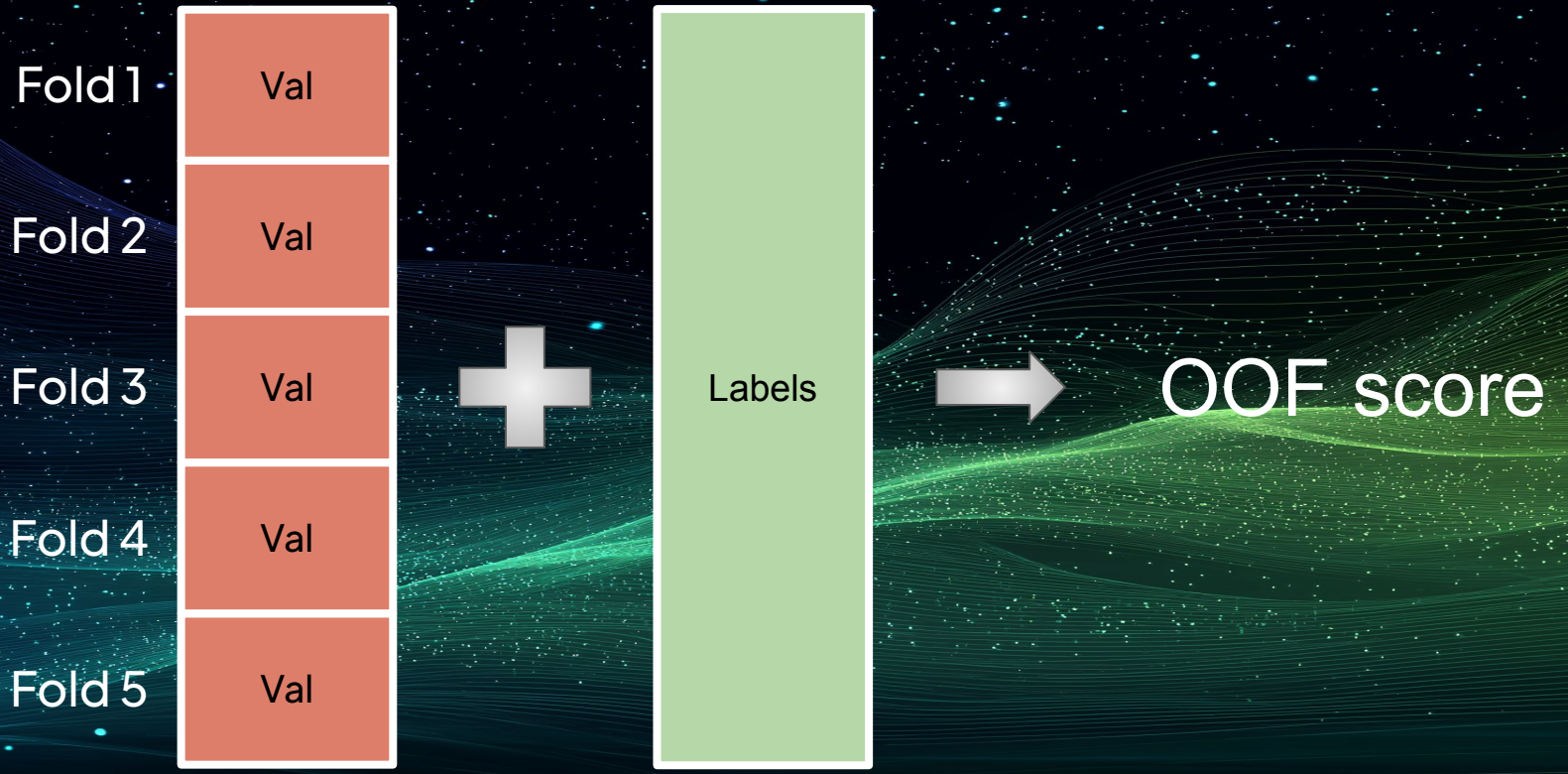
2601 tracks + answers

Cross Validation



Cross Validation

Cross Validation

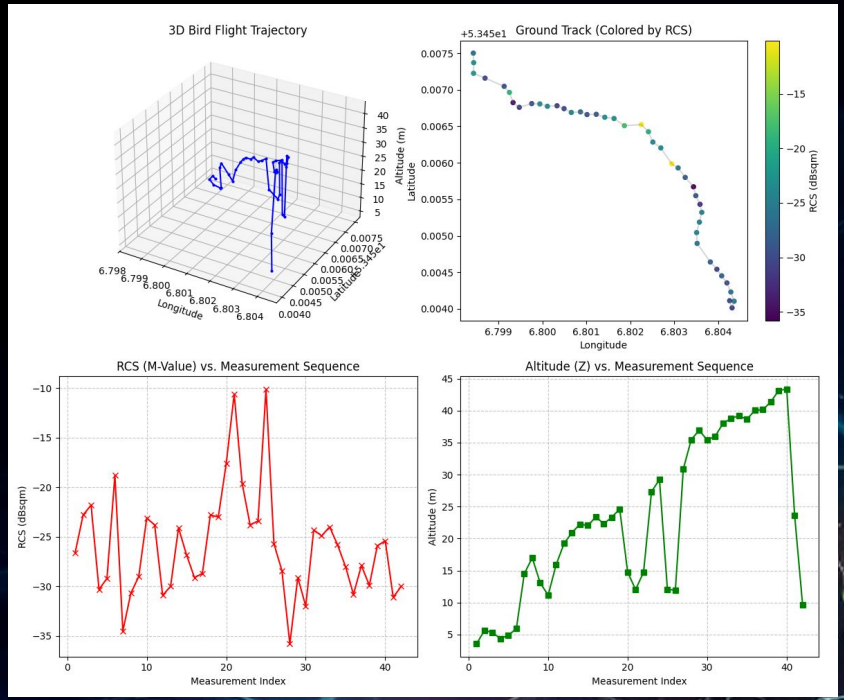


Time to make
the model!

How to improve?

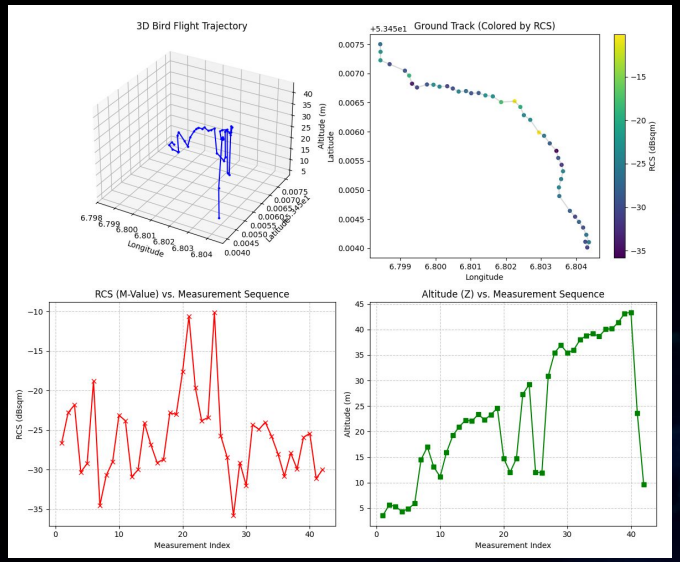
Future improvements

More EDA



Future improvements

More features!



Feature engineering

`tortuosity`

`climb_rate`

`rcs_std`

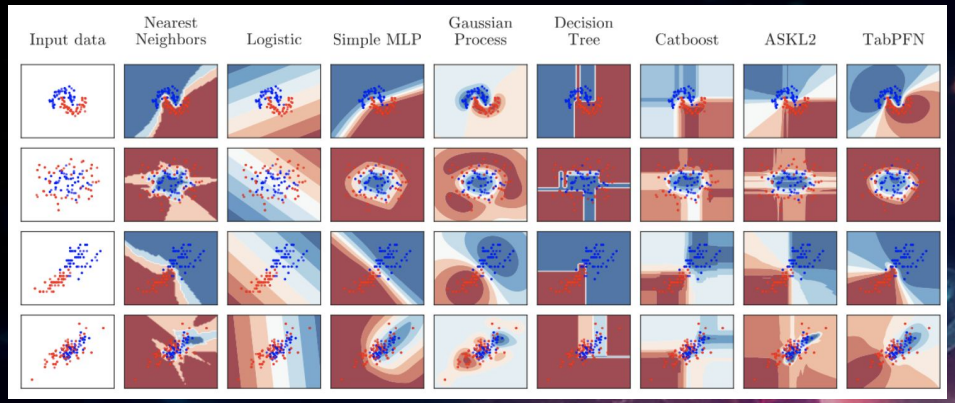
Future improvements

Different models

HistGradientBoostingClassifier

```
class sklearn.ensemble.HistGradientBoostingClassifier(loss='log_loss', *,
learning_rate=0.1, max_iter=100, max_leaf_nodes=31, max_depth=None,
min_samples_leaf=20, l2_regularization=0.0, max_features=1.0, max_bins=255,
categorical_features='from_dtype', monotonic_cst=None, interaction_cst=None,
warm_start=False, early_stopping='auto', scoring='loss',
validation_fraction=0.1, n_iter_no_change=10, tol=1e-07, verbose=0,
random_state=None, class_weight=None)
```

[source]

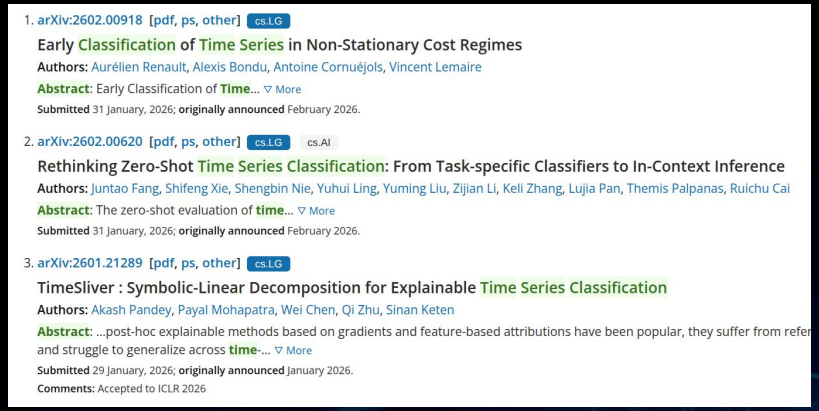


Future improvements

Building Ensembles

Future improvements

- Find similar competitions
- Research



1. arXiv:2602.00918 [pdf, ps, other] cs.LG

   Early Classification of Time Series in Non-Stationary Cost Regimes

   Authors: Aurélien Renault, Alexis Bondu, Antoine Cornuéjols, Vincent Lemaire

   Abstract: Early Classification of **Time**... ▽ More

   Submitted 31 January, 2026; **originally announced** February 2026.

2. arXiv:2602.00620 [pdf, ps, other] cs.LG cs.AI

   Rethinking Zero-Shot Time Series Classification: From Task-specific Classifiers to In-Context Inference

   Authors: Juntao Fang, Shifeng Xie, Shengbin Nie, Yuhui Ling, Yuming Liu, Zijian Li, Keli Zhang, Lujia Pan, Themis Palpanas, Ruichu Cai

   Abstract: The zero-shot evaluation of **time**... ▽ More

   Submitted 31 January, 2026; **originally announced** February 2026.

3. arXiv:2601.21289 [pdf, ps, other] cs.LG

   TimeSliver : Symbolic-Linear Decomposition for Explainable Time Series Classification

   Authors: Akash Pandey, Payal Mohapatra, Wei Chen, Qi Zhu, Sinan Keten

   Abstract: ...post-hoc explainable methods based on gradients and feature-based attributions have been popular, they suffer from refer
   and struggle to generalize across **time**-... ▽ More

   Submitted 29 January, 2026; **originally announced** January 2026.

   Comments: Accepted to ICLR 2026

Example search results on arxiv

Future improvements

Hyper Parameter optimization (HPO)

HistGradientBoostingClassifier

```
class sklearn.ensemble.HistGradientBoostingClassifier(loss='log_loss', *,
learning_rate=0.1, max_iter=100, max_leaf_nodes=31, max_depth=None,
min_samples_leaf=20, l2_regularization=0.0, max_features=1.0, max_bins=255,
categorical_features='from_dtype', monotonic_cst=None, interaction_cst=None,
warm_start=False, early_stopping='auto', scoring='loss',
validation_fraction=0.1, n_iter_no_change=10, tol=1e-07, verbose=0,
random_state=None, class_weight=None)
```

[source]

Happy
Modelling!

Questions?