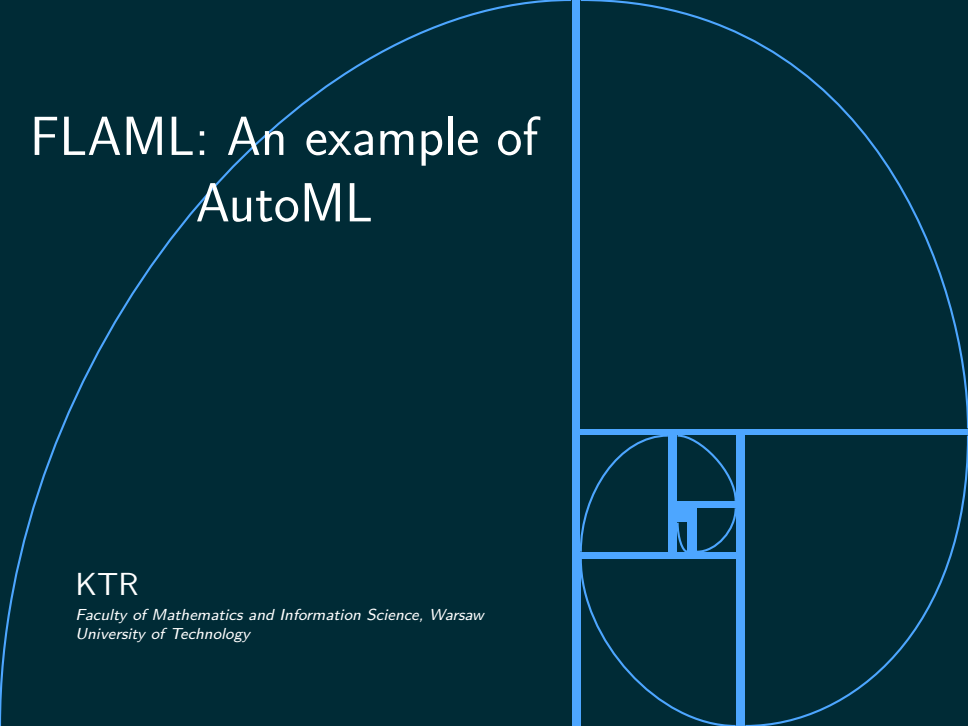# FLAML: An example of AutoML

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## What is AutoML?
What is this even about?

▶ Machine learning methods which can be used without expert knowledge.

▶ Automatically selects features, models and hyperparameters.

## FLAML
Microsoft's open source AutoML

- ▶ Automatic task selection: classification, regression etc.
- ▶ Basic preprocessing
- ▶ Model selection based on user specified metric
- ▶ Hyperparameter optimization

## Problems with FLAML's preprocessing
What went wrong...

We provided our own preprocessing in ADDITION to FLAML's own.

- ▶ Remove features with zero variance
- ▶ Impute missing data with modes
- ▶ Substitute outliers with border values
- ▶ Make the data similar to uniform distirbution
- ▶ Scale data to $[0, 1]$
- ▶ For categorical features:
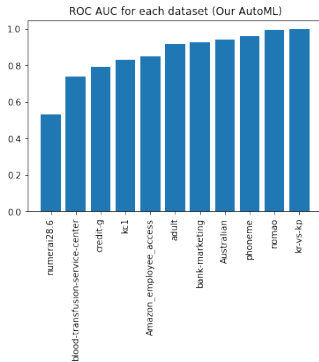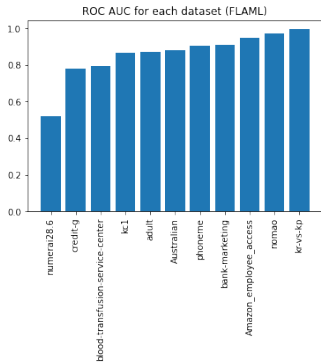- ✓ Group rare labels together
- ✓ Encode labels with WoE

## Our Model
### We tried our best

- Same preprocessing
- Optimize hyperparameters for select models
- Choose the best model

## How we compared the models

- Tests on the dataset from courses
- Tests on 11 selected datasets from OpenML

# ROC_AUC results
## FLAML

## Results
Time consumption



Time to train method on each dataset