

# Experimental Design for Machine Learning Experiments

**SHIPS  
developmental  
data**

**Preprocessing  
(select features,  
remove cases <  
100 km from  
land, etc)**

## Model Development / Training

**Bootstrapped model  
training (fully  
repeated 15 times)**

**2005-2018**

**I I remaining  
years for  
training**

**3 randomly  
selected years for  
validation (i.e.,  
2006, 2010, 2012)**

**Parameter grid  
(min. samples, max  
depth of decision  
tree, etc.)**

**Cross-validation  
with  
GridSearchCV**

**Best  
parameters**

**Trained  
model**

**Evaluation**

**Best guess  
model**

**Select best  
parameters**

**Full results of  
15 instances  
of training**

## Testing

**2019-2021**

**Final testing**

