Challenge #1
MoReBikeS: Model Reuse
with Bike Rental Station data

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Model reuse

- Two related events Today
  - This challenge
  - Learning Models over Multiple Contexts workshop
  http://users.dsic.upv.es/~flip/LMCE2015/MoReBikeS_Schedule.html

- Practical importance
  - Change of context between learning and deployment
  - Few ressources (data) for (re)training

Challenge

- Predict the number of available bikes in every bike rental stations 3 hours in advance

- 200 training stations, Jun. 2012-Sept. 2014

- 75 test stations, Nov. 2014-Jan. 2015

- Deployment data, Oct. 2014

- Emphasis on model reuse:
  - models on all training stations
  - data on 10 training stations only

Data and models

- Data
  - Station: number, latitude, longitude, numDocks
  - Timepoint: timestamp, year, month, day, hour, weekday, weekhour, isHoliday
  - Weather: windMaxSpeed, windMeanSpeed, windDirection, temperature, relHumidity, airPressure, precipitation
  - bikes_3h_ago
  - Target: bikes

Data and models

- Baselines
  - 3 hours ago, weekly profile value, or combination
- Additional features
  - full_profile_bikes: average of bikes, same weekhour, same station, all past timepoints
  - full_profile_3h_diff_bikes: average of (bikes – bikes_3h_ago), similarly
  - short_*_profiles: same weekhour, 4 last timepoints only

Data and models

- Only linear models (using R function rlm)

	short	short_temp	full	full_temp	short_full	short_full_temp
bikes_3h_ago	✓	✓	✓	✓	✓	✓
short_profile_3h_diff_bikes	✓	✓			✓	✓
short_profile_bikes	✓	✓			✓	✓
full_profile_3h_diff_bikes			✓	✓	✓	✓
full_profile_bikes			✓	✓	✓	✓
temperature		✓		✓		✓

Organisation

- Leaderboards based on 25 stations of test data
- Up to 12 submissions per participant
- Updated every week from May 4 to June 8
- Final evaluation on the full test data
- 23 participants & 116 submissions
- Student prize on the small test data
    1° Yu Chen, University of Bristol
    2° Victor Nuñez Monsalvez, Universitat Politècnica de València

Results on the full test set

Team	Authors	MAE
Dmlab	Gergo Barta	2.4155
Tom&Niall	Tom Diethe, Niall Twomey, Peter Flach	2.3921
arp	Andrés Ramos, Francisco Rangel	2.3092
thelastone	Víctor Núñez Monsálvez	2.2098
Denis	Denis Moreira dos Reis	2.1725
Farhan	Chowdhury Farhan Ahmed	2.1027
DCC_UFLA_15	Fernando Simeone, Diego S. Mendes, Ahmed A. A. Esmin	2.0794
Arun B S	Arun Bala Subramaniyan, Rong Pan	2.0667
Yu Chen	Yu Chen, Peter Flach	2.0515
Hao	Hao Song, Peter Flach	2.0143

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