LAboratory of Methods for Big Data Analsys (LAMBDA)
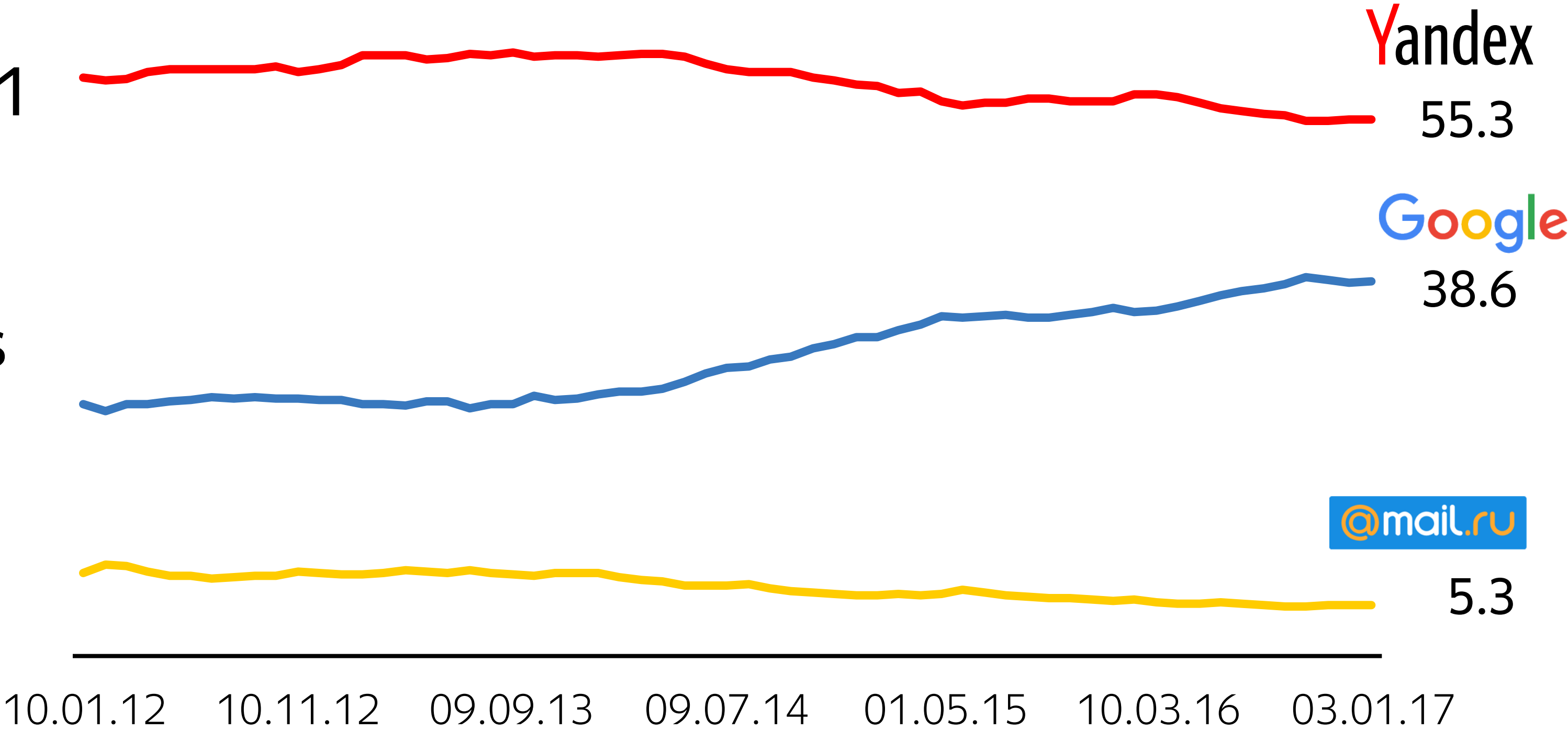
2017-10-02

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What is Yandex

Public company since 2011

In Q3 2016 search share across different platforms were approximately[1]:
    64% on desktop
    38% on Android
    42% on iOS

Yandex **55.3**

Google **38.6**

@mail.ru **5.3**

10.01.12   10.11.12   09.09.13   09.07.14   01.05.15   10.03.16   03.01.17

Source: Liveinternet.ru 2012-December, 2016; includes desktop and mobile

[1] Based on company estimates, as provided on Q3 2016 earnings call

Andrey Ustyuzhanin

Our group

Yandex School of Data Analysis (YSDA) - non-commercial educational organisation (founded by Yandex in 2007)

We've started as part of Yandex School of Data Analysis

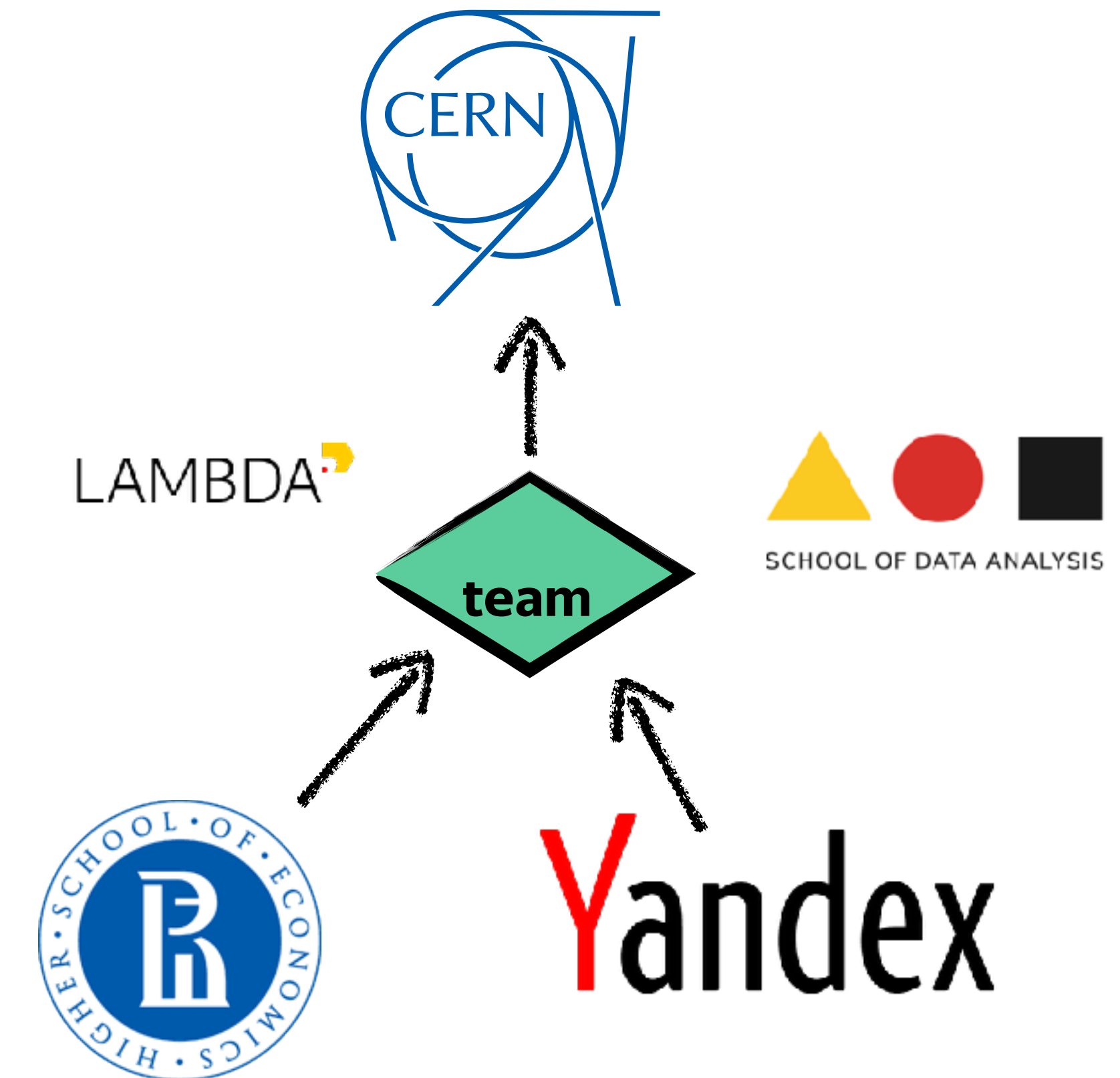> 2 physicists (PhD), 7 data scientists (6 of them are graduate/undergraduate students from MIPT, MSU, HSE)

YSDA is member of HEP collaborations:

> LHCb (since 2015), SHiP (since 2014), CRAYFIS (since 2015)

Yandex has founded Computer Science faculty at HSE in 2014

Laboratory of Methods for Big Data Analysis has been created in 2015, headed by AU; Dr. Denis Derkach and Dr. Fedor Ratnikov are key team members.

Working group directions

Research & Development

›   Solving scientific and technical HEP challenges by Machine Learning

Education

›   Machine Learning Courses (YSDA, Imperial College London, Helsinki CSC)

›   Summer Schools on Machine Learning for HEP starting from 2015
    bit.ly/mlhep2017

Outreach

›   Masterclasses, Data&Science (https://events.yandex.ru/events/ds/),

›   Hackatnones on data science, Machine Learning (http://bit.ly/2IxUWCO)

ACAT-2017 talks & posters

- Deep Learning Method for Inferring Cause of Data Anomalies

  Maxim Borisyak, Denis Derkach, Fedor Ratnikov, Andrey Ustyuzhanin

- Modeling detector digitization and read-out with adversarial networks

  Maxim Borisyak, Chase Shimmin, A Nelson, Andrey Ustyuzhanin

- Machine Learning Based Global Particle Identification at LHCb

  Mikhail Hushchyn, Denis Derkach, Fedor Ratnikov, Nikita Kazeev

- Machine Learning Photons Separation in the LHCb Calorimeter

  Fedor Ratnikov, Victoria Chekalina, Alexander Panin

- Speeding up prediction performance of the BDT-based models

  Egor Khairullin, Andrey Ustyuzhanin

- Gradient reversal for MC/real data calibration

  Artem Ryzhikov, Andrey Ustyuzhanin

In short …

Conclusion

The whole team is moving from YSDA to HSE this year, LAMBDA
The main focus of the laboratory is

› development of ML methods for solving tough fundamental science challenges;

› collaboration with leading international research institutions and industry;

Funding sources: HSE, Yandex, Russian Science Foundation

TODO

add physics focus

add LAMBDA to the picture