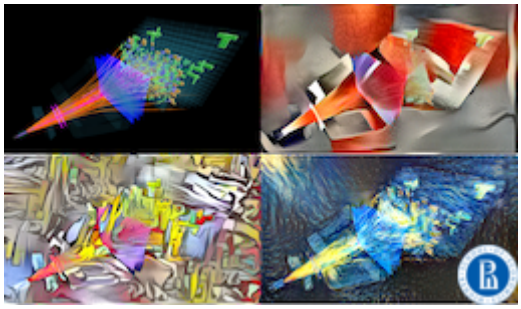
Session Program

17–23 Jul 2017



Third Machine Learning in High Energy Physics Summer School 2017

Lectures

Reading, Reading University
Reading University, Reading, United Kingdom

Monday 17 July

09:00

Lectures: Day 1 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom | **Convener:** Alexey Artemov

09:00–10:30

Lecture 1. Introduction. Why ML works. Overfitting. Model Selection. Figures of Merits. Linear Models. Regularization. Logistic Regression.

Speaker

Alexey Artemov

10:30

14:00

Lectures: Day 1 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom | **Convener:** Alexey Artemov

14:00–15:30

Lecture 2. Decision Trees. Bagging. Ensembles. RandomForest. AdaBoost. GB-Reweighting. Gradient Boosting. Decorrelation of features with predictions.

Speaker

Alexey Artemov

15:30

Tuesday 18 July

09:00

Lectures: Day 2 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

09:00–10:30 **Lecture 3. Ensembling: Adaboost, Stacking. Gradient Boosting.**

10:30

13:30

Lectures: Day 2 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

13:30–15:00

Lecture 4. Hyperparameters optimization techniques and methods. Feature selection. TPE. Gaussian Processes

15:00

Thursday 20 July

09:00

Lectures: Day 4 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

09:00–10:30

Lecture 5. Introduction into Neural Network models. Multi-layered Perceptron. Backpropagation.

10:30

13:30

Lectures: Day 4 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

13:30–15:00

Lecture 6. Intro into Deep learning. Convolutional Neural Network. Model zoo. Augmentation.

15:00

Friday 21 July

13:30

15:00

Lectures: Day 5 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

13:30–15:00

Lecture 7. Dimensionality Reduction. PCA. LDA. LLE. TSNE. Autoencoders.

Saturday 22 July

09:00

Lectures: Day 6 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

09:00–10:30 **Lecture 8 Generative Adversarial Networks, Metric Learning.**

10:30

13:30

Lectures: Day 6 Lectures

Session | **Location:** Reading, Reading University, Reading University, Reading, United Kingdom

13:30–15:00 **Lecture 9. RNNs.**

15:00–15:30 **Coffee break**

15:30–16:00 **Certificates, Free Discussion**

16:00