

IN2P3 School of Statistics 2024

Yann Coadou
for the SOS organising committee

CPPM Marseille

Carry-le-Rouet
17 May 2024





IN2P3 School of Statistics 2024 May 13-17 Carry-le-Rouet

Scientific Programme

Courses

Basic concepts of statistics: Romain Mader (LPCA, Clermont-Ferrand)
 Classical interval estimation, limits, systematics and beyond: Adinda de Wit (LLR, Palaiseau)
 Bayesian statistics: Lella Haeghe (IPZ, Lyon)
 Unfolding: Philippe Gau (CEA-IRFU, Saclay)
 Introduction to machine learning: Vincent Barot (UCA, Clermont-Ferrand)
 Performance metrics: Boosted decision trees: Yann Coadou (CPPM, Marseille)
 Introduction to deep learning: Florian Ruppin (Université Lyon 1 - IP2I)
 Advanced deep learning: Tobias Gollig (Université de Genève)
 Simulation based inference: Cyrille Daux (LPS, Grenoble)

Hands on sessions

Statistics: Adinda de Wit (LLR, Palaiseau)
 Introduction to machine learning tools: David Rousseau (ICLab, Orsay)
 Advanced machine learning: Florian Ruppin (Université Lyon 1 - IP2I)



Organizing Committee

Johann Begeon (LPS, Grenoble)
 Eric Chabert (IMC, Strasbourg)
 Yann Coadou (CPPM, Marseille, chair)
 Sabine Cristel-Renaudin (LPS, Grenoble)
 Lella Haeghe (IPZ, Lyon)
 Emile Hiriart (LPCA, Clermont-Ferrand)
 Romain Mader (LPCA, Clermont-Ferrand)
 Gaëlle Mouton (CEA-IRFU, Saclay)
 David Rousseau (ICLab, Orsay)

Administrative Support
 Angélique Pepe (CPPM, Marseille)

<https://indico.in2p3.fr/e/sos2024>

- This school received financial support from



- Thanks to the Miléade team

- They gave me a lot of positive feedback on your behaviour:
 "Vous êtes des champions du monde !"
 Good job!

▶ <https://indico.in2p3.fr/e/SOS2024>

▶ <https://sos.in2p3.fr>



IN2P3 School of Statistics 2024 May 13-17 Carry-le-Rouet

Scientific Programme

Courses

Basic concepts of statistics: Romain Madar (LPCA, Clermont-Ferrand)
 Classical interval estimation, limits, systematics and beyond: Adinda de Wit (LLR, Palaiseau)
 Bayesian statistics: Leïla Haegel (IP2I, Lyon)
 Unfolding: Philippe Gros (CEA/IRFU, Saclay)
 Introduction to machine learning: Vincent Barra (UCA, Clermont-Ferrand)
 Performance metrics: Boosted decision trees: Yann Coadou (CPPM, Marseille)
 Introduction to deep learning: Florian Ruggin (Université Lyon 1 - IP2I)
 Advanced deep learning: Tobias Gollig (Université de Genève)
 Simulation based inference: Cyrille Daux (LPSC, Grenoble)

Hands on sessions

Statistics: Adinda de Wit (LLR, Palaiseau)
 Introduction to machine learning tools: David Rousseau (IJCLab, Orsay)
 Advanced machine learning: Florian Ruggin (Université Lyon 1 - IP2I)



Organizing Committee

Johan Bregeon (LPSC, Grenoble)
 Eric Chabert (IPHC, Strasbourg)
 Yann Coadou (CPPM, Marseille, chair)
 Sabine Crépe-Renaudin (LPSC, Grenoble)
 Leïla Haegel (IP2I, Lyon)
 Emille Ishida (LPCA, Clermont-Ferrand)
 Romain Madar (LPCA, Clermont-Ferrand)
 Guillaume Mention (CEA/IRFU, Saclay)
 David Rousseau (IJCLab, Orsay)

Administrative Support
 Angélique Pèpe (CPPM, Marseille)

<https://indico.in2p3.fr/e/sos2024>

Organising committee

- Johan Bregeon (LPSC, Grenoble)
- Éric Chabert (IPHC, Strasbourg)
- Yann Coadou (CPPM, Marseille) [chair]
- Sabine Crépe-Renaudin (LPSC, Grenoble)
- Leïla Haegel (IP2I, Lyon)
- Emille Ishida (LPCA, Clermont-Ferrand)
- Romain Madar (LPCA, Clermont-Ferrand)
- Guillaume Mention (CEA/IRFU, Saclay)
- David Rousseau (IJCLab, Orsay)

Local support at CPPM

- Angélique Pèpe



IN2P3 School of Statistics 2024 May 13-17 Carry-le-Rouet

Scientific Programme

Courses

Basic concepts of statistics: Romain Madar (LPCA, Clermont-Ferrand)
 Classical interval estimation, limits, systematics and beyond: Adinda de Wit (LLR, Palaiseau)
 Bayesian statistics: Leïla Haegel (IP2I, Lyon)
 Unfolding: Philippe Gras (CEA/IRFU, Saclay)
 Introduction to machine learning: Vincent Barra (UCA, Clermont-Ferrand)
 Performance metrics: Boosted decision trees: Yann Coadou (CPPM, Marseille)
 Introduction to deep learning: Florian Ruppin (Université Lyon 1 - IP2I)
 Advanced deep learning: Tobias Golling (Université de Genève)
 Simulation based inference: Cyrille Doux (LPSC, Grenoble)

Hands on sessions

Statistics: Adinda de Wit (LLR, Palaiseau)
 Introduction to machine learning tools: David Rousseau (IJCLab, Orsay)
 Advanced machine learning: Florian Ruppin (Université Lyon 1 - IP2I)



Organizing Committee

Johan Begeon (LPSC, Grenoble)
 Eric Chubert (IPHC, Strasbourg)
 Yann Coadou (CPPM, Marseille, chair)
 Sabine Cristof-Renaudin (LPSC, Grenoble)
 Leïla Haegel (IP2I, Lyon)
 Ernie Irfat (LPCA, Clermont-Ferrand)
 Romain Madar (LPCA, Clermont-Ferrand)
 Guilavane Mouton (CEA/IRFU, Saclay)
 David Rousseau (IJCLab, Orsay)

Administrative Support
 Angélique Pepe (CPPM, Marseille)

<https://indico.in2p3.fr/e/sos2024>

Lecturers

- Romain Madar (LPCA, Clermont-Ferrand)
- Adinda de Wit (LLR, Palaiseau)
- Vincent Barra (UCA, Clermont-Ferrand)
- Yann Coadou (CPPM, Marseille)
- David Rousseau (IJCLab, Orsay)
- Leïla Haegel (IP2I, Lyon)
- Florian Ruppin (Université Lyon 1 – IP2I)
- Tobias Golling (Université de Genève)
- Philippe Gras (CEA/IRFU, Saclay)
- Cyrille Doux (LPSC, Grenoble)

Survey from indico

Please fill in the [▶ survey](#) about the school in the coming days (or from the main [▶ indico](#) page)

Practicalities

- Bus departure for Aix-TGV at **13h45**, parking by restaurant: be on time!
- Please put your badge in the box before leaving

French ML activities

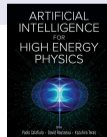
[▶ machine-learning-l@in2p3.fr](#)

- To subscribe to the email list:
 - send a mail to [▶ listserv@in2p3.fr](mailto:listserv@in2p3.fr)
 - with message body: subscribe machine-learning-l Firstname Lastname
- We hope to see you at the **IN2P3/CEA ML workshop in fall 2024** in Strasbourg (most likely)

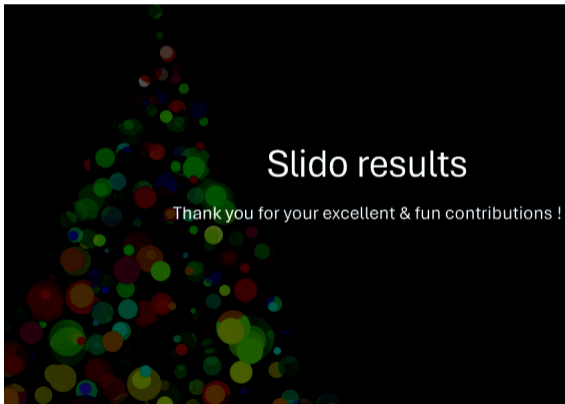
Reference book (March 2022)

Artificial Intelligence for High Energy Physics

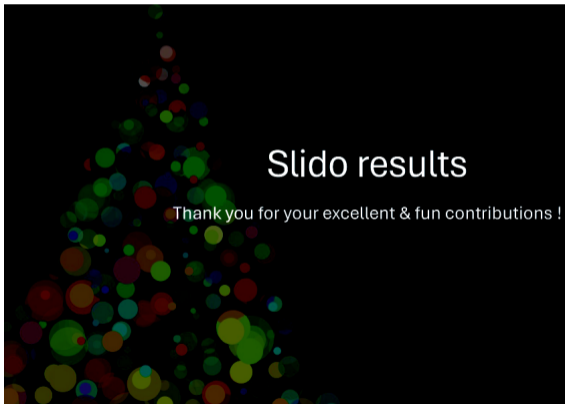
[▶ https://doi.org/10.1142/12200](https://doi.org/10.1142/12200)



- Tobias shared the Slido results from yesterday in [indico](#)



- Tobias shared the Slido results from yesterday in [indico](#)



David Rousseau
@dhpmrou

10 years ago #OTD, @bingxu_ and @tqchenml quietly announced the birth of @XGBoostProject on the @kaggle #higgsml competition forum. Since then, XGBoost has skyrocketed in popularity to become the top ML go-to tool!

1/4

[Traduire le post](#)

Higgs Boson Machine Learning Challenge

Use the ATLAS experiment to identify the Higgs boson

Overview Data Code Models Discussion Leaderboard Rules

BING XU · 80TH IN THIS COMPETITION · POSTED 10 YEARS AGO

Public Starting Guide to Get above 3.60 AMS score

Hi all,

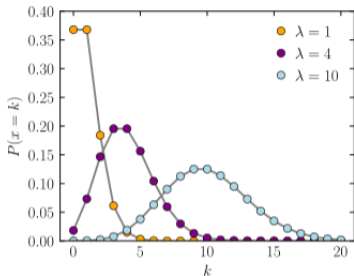
Tianqi Chen (crowwork) has made a fast and friendly boosting tree library XGBoost. By using XGBoost and run a script, you can train a model with 3.60 AMS score in about 42 seconds.

The demo is at: <https://github.com/tqchen/xgboost/tree/master/demo/kaggle-higgs>, you can just type ./run.sh to get the score after you build it.

XGBoost is as easy to use as scikit-learn. And on my computer with Core i5-4670K CPU, the speed test.py (boosting 10 trees) shows:

```
sklearn.GBM costs: 77.5 seconds
XGBoost with 1 thread costs: 11.0 seconds
XGBoost with 2 thread costs: 5.85 seconds
XGBoost with 4 thread costs: 3.40 seconds
```

[original post](#)



```
>>> import scipy.stats
>>> scipy.stats.poisson
```




WhatsApp

