2-Day Workshop - Introduction to Data Science in Python

Rapport sur les contributions

ID de Contribution: **0**   Type: **Non spécifié**

Invited Talk: Open Research Problems in AutoML

ID de Contribution: **1**   Type: **Non spécifié**

Invited Talk: Bandits and Bayesian optimization for AutoML

Complex optimization and decision making tasks are beginning to play an
increasingly crucial role across a wide variety of scientific fields. This is
becoming more and more evident as entire research programs are being automated.

In this talk I'll describe a set of methods, known as Bayesian optimization,
which provide a very sample efficient approach to this problem. Much of the
gains of these methods are obtained by building a posterior model of a function
during optimization in order to efficiently explore its surface. I will
further describe a number of advanced search mechanisms and models and show how these can
be used for automating Machine Learning problems. Finally, I will also briefly provide links to
related bandit literature.

Orateur: HOFFMANN, Matthew (University of Cambridge)

ID de Contribution: **2**   Type: **Non spécifié**

Poster Spotlights 1

5 spotlights of 2 minutes each

ID de Contribution: **3**　　　　　　　　　　　　　　Type: **Non spécifié**

Invited Talk: Algorithm Recommendation as Collaborative Filtering

Orateur: SEBAG, Michele (CNRS)

ID de Contribution: **4**   Type: **Non spécifié**

Poster spotlights 2

9 spotlights of 2 minutes each

ID de Contribution: **5** Type: **Non spécifié**

1st Poster Session

ID de Contribution: **6**   Type: **Non spécifié**

X

ID de Contribution: **7**   Type: **Non spécifié**

Invited Talk: Automatically constructing models, and automatically explaining them, too.

How could an artificial intelligence do statistics? It would need an open-ended language of models, and a way to search through and compare those models. Even better would be a system that could explain the different types of structure found, even if that type of structure had never been seen before. This talk presents a prototype of such a system, which builds structured Gaussian processes regression models by combining covariance kernels to build a custom model for each dataset. The resulting models can be broken down into relatively simple components, and surprisingly, it's not hard to write code that automatically describes each component, even for novel combinations of kernels. The result is a procedure that takes in a dataset, and outputs a report with plots and English descriptions of the different types of structure found in that dataset.

Orateur: DUVENAUD, David (Harvard University)

ID de Contribution: **8** Type: **Non spécifié**

2nd Poster Session

ID de Contribution: **9**   Type: **Non spécifié**

Invited Talk: OpenML: A Foundation for Networked & Automatic Machine Learning

OpenML is an online machine learning platform where scientists can automatically log and share data sets, code, and experiments, organize them online, and collaborate with researchers all over the world. It helps to automate many tedious aspects of research, is readily integrated into several machine learning tools, and offers easy-to-use APIs. It also enables large-scale and real-time collaboration, allowing researchers to build directly on each other's latest results, and track the wider impact of their work. Ultimately, this provides a wealth of information for building systems that learn from previous experiments, to either assist people while analyzing data, or automate the process altogether.

Orateur: VANSCHOREN, Joaquin (Eindhoven University of Technology)

ID de Contribution: **10**   Type: **Non spécifié**

AutoML Challenge

Orateur: BOULLE, Marc (Orange)

ID de Contribution: **11**   Type: **Non spécifié**

Panel Discussion: Next steps for AutoML

Panelists: Marc Boulle, Rich Caruana, David Duvenaud, Matthew Hoffmann, Juergen Schmidhuber, Michèle Sebag, Joaquin Vanschoren.