LISA data analysis: from classical methods to machine learning

November 21, 2022 - November 25, 2022

L2IT Toulouse

Scientific Program

OVERALL ORGANISATION

The workshop is divided into a training part, running from Monday morning to Wednesday morning, and a conference part, running from Wednesday afternoon to Friday morning.

TRAINING PART

The training part is composed by introductory lectures and training sessions. Introductory lectures will provide a broad overview of the main topics of the workshop, while each training session will have a total duration of 3 (non-consecutive) hours with the aim of teaching both the theoretical bases of a specific topic as well as its practical applications through hands-on tutorials with GW data analysis codes.

Introductory lectures

- **Sylvain Caillou** | L2IT | Introduction to Machine Learning
- **Maude Le Jeune** | APC | Introduction to LISA Data Analysis

Training sessions

- **Joe Bayley + Michael Williams** | Univ. Glasgow |
  GW Detection with Traditional vs Machine Learning Techniques
- **Stephen Green + Natalia Korsakova** | Uni. Nottingham + APC Paris |
  GW Parameter Estimation with Bayesian Machine Learning
- **Micheal Katz + Lorenzo Speri** | AEI Potsdam |
  GPU Techniques to Accelerate GW Waveforms and Data Analysis Computations
- **Stas Babak (based on a tutorial by Christopher Moore)** | APC Paris |
  Gaussian Process Regression

CONFERENCE PART

The conference part will host both invited and contributed talks, as well as discussion sessions on specific arguments related to LISA data analysis and machine learning applications to GW data analysis.

Invited international speakers

- **Alvin Chua** | Univ. Singapore
- **Nikos Karnesis** | Univ. Thessaloniki
- **Kristen Lackeos** | MPIfR Bonn
- **Laura Sberna** | AEI Potsdam

Key national speakers

- **Stas Babak** | APC
- **Quentin Baghi** | CEA
- **Jean-Baptiste Bayle** | Univ. Glasgow
- **Olaf Hartwig** | SYRTE
- **Natalia Korsakova** | APC
- **Sylvain Marsat** | L2IT
- **Hong-Nga Nguyen** | CNES
- **Antoine Petiteau** | CEA