LTCI

Laboratoire
Traitement et
Communication de
l'Information

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

TELECOM Paris

IP PARIS

JOURNÉE RECHERCHE

27 NOVEMBRE 2025

Programme

MATIN

8:30 – 9:00

Accueil café

9:00 – 9:15

Introduction & présentation de la journée

Talel Abdessalem, Directeur du LTCI

9:15 – 10:15

Conférence invitée

Meta-narratives and control points in political debate on Twitter

Based on a longitudinal analysis of social and political structures on X-Twitter at the French and international levels, this presentation will identify commonalities among several major divisive social issues, such as climate denialism and COVID-19 vaccination. It will then examine how these issues are placed on the media agenda and to what extent they can be exploited in an electoral context.

David Chavalarias, Director of the Complex Systems Institute of Paris Ile-de-France

10:15 – 10:45

Pause

Exposés scientifiques du LTCI

10:45 – 11:15

The next frontier in relational learning: Higher-order neural networks

Graph neural networks have become a standard tool for learning on relational data. However, graphs are limited to pairwise interactions, while many real-world systems involve higher-order relationships, such as multi-way collaborations, group dynamics, or geometric structures. To address this gap, recent research has introduced neural networks that operate on higher-order domains, including hypergraphs, simplicial complexes, and cell complexes.

Jhony H. Giraldo (IDS)

11:15 – 11:45

Point The data uncertainty principle: Measurement, analysis and inference in high-speed virtualized networks

In physics, the uncertainty principle limits how precisely we can know certain properties, while the observer effect shows that measuring a system can alter it. In our research, we show how these concepts apply to data obtained through macroscopic systems like virtualized cloud networks. We develop non-invasive AI algorithm that are capable to infer a system state without direct measurement (reducing observer effects) and we investigatewhether these limits are technological or fundamental.

Leonardo Linguaglossa (INFRES)

11:45 - 12:15

Expanding microarchitectural battlefield: The invisible threats (side-channel attacks) inside our processors

Beneath every clock cycle lies a battlefield you never see, where attackers weaponise timing, power, and speculation to break security from within. Your processor keeps secrets, but not from attackers. Let's explore how invisible microarchitectural whispers can leak everythingyou thought was secure.

Maria Mushtaq (COMELEC)

12:15 - 13:45

Session posters – Déjeuner (buffet)

APRÈS-MIDI

13:45 – 14:30

Conférence invitée

Sustainable spatial management of agricultural areas

Can we design agricultural landscapes that feed us without silencing nature? Mathematical models allow us to explore how spatial heterogeneity shapes the trade-offs between yield and conservation goals.

Madeleine Kubasch , Postdoctoral researcher, CMAP, École polytechnique, IEES, Sorbonne Université

Exposés scientifiques du LTCI

14:30 – 15:00

Algorithmic fairness and graphs

From friendship recommendations to fraud detection, many decisions today rely on analyzing network connections. Ensuring fairness in this context raises unique challenges, as biases and tasks such as link prediction are entangled with the graph structure itself. I will focus on fairness in edge prediction, showing how structural bias emerge and how we help can mitigate them.

Charlotte Laclau (IDS)

15:00 – 15:30

Why Docker isn't enough: Building software environments that stay reproducible over time

Complex software setups can be difficult to reproduce after some time. Tools like Docker make it easy to share software environments, but they don't guarantee that those environments can be rebuilt exactly in the future. By rebuilding thousands of existing Docker and Nix software packages, we show that functional package management offers a stronger foundation for reproducibility, one that endures across time and machines.

Théo Zimmermann (INFRES)

15:30 – 16:00

Digital signal processing solutions to support wide-scale deployment of fiber optic sensing

Digital signal processing (DSP) has become paramount for modern fiber sensing technologies. In this field, DSP quickly evolved from using simple pulses to employing advanced techniques such as spread spectrum, polarization handling and machine learning for feature extraction and event recognition. In this talk, we will illustrate this through scenarios extracted from our recent works.

Élie Awwad (COMELEC)

16:00 – 16:15

Conclusion - Temps d'échanges

Talel Abdessalem

16:15

Fin de la journée

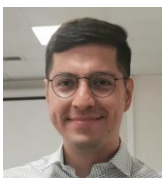
INTERVENANTS

Élie Awwad, Associate Professor (COMELEC)

Élie's research interests concern signalling schemes design and digital signal processing techniques applied to optical fiber communication systems and optical fiber sensors.

David Chavalarias, Director of the Complex Systems Institute of Paris Ile-de-France

Director of the Complex Systems Institute of Paris Ile-de-France, author of Toxic data and of Elon Musk en 50 Tweets. David's research focuses on understanding our collective behaviors and opinion dynamics through modeling and analysis of web data.



Jhony H. Giraldo, Associate Professor (IDS)

Jhony's research focuses on the theory and applications of Geometric Deep Learning (graph and higher-order networks), Computer Vision, Machine Learning, and Graph Signal Processing.

Madeleine Kubasch , Postdoctoral researcher, CMAP, École polytechnique, IEES, Sorbonne Université

She received the L'Oréal-UNESCO For Women in Science Young Talents Award for her thesis work on mathematical models of epidemic spread. Madeleine's current research, funded by the Chaire "Modélisation Mathématique et Biodiversité" (X-Veolia-MNHM) focuses on understanding how different agricultural landscapes shape biodiversity.

Charlotte Laclau, Associate Professor (IDS)

Charlotte's main line of research is in machine learning: Representation learning for complex data, Fairness in machine learning for relational data, and Unsupervised learning for high-dimensional data.

Leonardo Linguaglossa, Associate Professor (INFRES)

Leonardo's research focuses on network data exploration, Novel architectures for non-persistent data processing in edge/cloud systems, and Energy performance in high-speed cloud networks.

Maria Mushtaq, Associate Professor (COMELEC)

Maria's research interests lie in Microarchitectural security, Side-channel attacks & mitigations and AI-driven vulnerability assessment mechanisms for embedded systems.

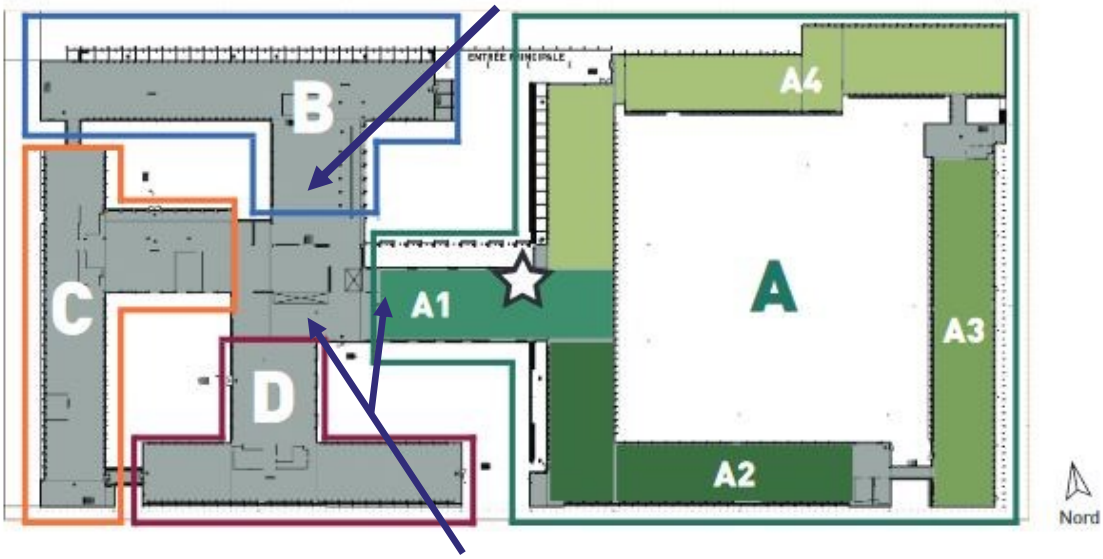
Théo Zimmermann, Associate Professor (INFRES)

Théo's research aims to understand and improve the way free software maintainers and contributors collaborate to develop software projects and ecosystems.

INFORMATIONS PRATIQUES

Toutes les conférences se dérouleront en

Amphi Thévenin



Les posters seront exposés dans le hall.
Le buffet se tiendra dans le hall.

Comité de programme

Président : Jean-Louis Dessalles

Florence d'Alché-Buc, Marceau Coupechoux,
Lirida Naviner, Yves Jaouën

Organisation

Laurence Franchiset