

# Application BASTRI

## Fiches Equipes

### MAGNET (SR0739PR)

Machine Learning in Information Networks  
MAGNET (SR0550PR)  MAGNET

**Statut:** Décision signée

**Responsable :** Marc Tommasi

**Mots-clés de "A - Thèmes de recherche en Sciences du numérique - 2024" :** A5.7.3. Parole , A5.8. Traitement automatique des langues , A9.2. Apprentissage , A9.4. Traitement automatique des langues , A9.9. IA distribuée, multi-agents

**Mots-clés de "B - Autres sciences et domaines d'application - 2024" :** B2. Santé , B9.5.1. Informatique , B9.5.6. Science des données , B9.6.8. Linguistique , B9.6.10. Humanités numériques , B9.9. Ethique , B9.10. Confidentialité, vie privée

**Domaine :** Perception, Cognition, Interaction

**Thème :** Représentation et traitement des données et des connaissances

**Période :** 01/05/2016 -> 30/06/2025

**Dates d'évaluation :** 03/10/2019 ,

**Etablissement(s) de rattachement :** CNRS, UNIVERSITE DE LILLE  
**Laboratoire(s) partenaire(s) :** CRISTAL (9189)

**CRI :** Centre Inria de l'Université de Lille  
**Localisation :** Centre Inria de l'Université de Lille  
**Code structure Inria :** 101044-1

**Numéro RNSR :** 201321079K  
**N° de structure Inria:** SR0739PR

### Présentation

A primary objective of Magnet is in making artificial intelligence more acceptable to society by solving some ethical issues of Machine Learning (ML) and on empowering end users of artificial intelligence. From a scientific perspective we focus on privacy, fairness, (data) sobriety. Our approaches are typically based on the common theme of leveraging the relationships between data and between learning objectives. We study graph-based machine learning methods which are the common foundations of the research group and we rely on methods coming from statistical and computational learning theory, graph theory, representation learning, (distributed) optimization and statistics.

We are mainly interested in provable properties for machine learning algorithms but we also consider more empirical work. Our application domains cover health, mobility, social sciences, voice technologies.

### Axes de recherche

Our research is organized along three main axes:

- Mining and learning in graphs: we study the trade-off between predictive accuracy, computational complexity and verification of ethical properties for graph-based learning algorithms.
- Machine Learning for Natural Language Processing: we study how to enhance NLP methods with graph-based learning algorithms and how to develop ethical learning algorithms in NLP. The objective is to go beyond vectorial classification to solve task like coreference resolution and entity linking, temporal structure prediction, and discourse parsing.
- Decentralized Machine Learning: we address the problem of learning in a private, fair and energy efficient way when users and data are naturally distributed in a network. From an algorithmic perspective, we study federated learning and fully decentralized learning and optimization. We also consider research on a global and holistic level, in complex pipelines that involve learning.

### Relations industrielles et internationales

#### Contact

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#### En savoir plus

- Site de l'équipe
- Site sur [inria.fr](http://inria.fr)
- Site du [responsable](#)
- Derniers Rapports d'Activité : [2016](#) , [2017](#) , [2018](#) , [2019](#) , [2020](#) , [2021](#) , [2022](#) , [2023](#)

#### Documents sur la structure

- [Intranet](#)
- [Privés](#)

#### Décisions

- [11581](#) (25/04/2016) : création
- [14331](#) (30/07/2020) : prolongation
- [16994](#) (26/04/2024) : prolongation
- [17478](#) (27/11/2024) : prolongation

#### Localisation

- **Adresse postale :** Centre Inria de l'Université de Lille Parc Scientifique de la Haute Borne 40, avenue Halley Bât.A, Park Plaza 59650 Villeneuve d'Ascq France
- **Coordonnées GPS :** 50.606, 3.149

- UCLA, UCL, Alan Turing Institute, MPI
- Lille Hospital, Université de Lille