

Programme séminaire annuel e-Adapt / e-Adapt annual workshop program

Date et lieu / Date and location

Lundi 16 juin après-midi et mardi 17 juin matin / Monday June 16th afternoon
and Tuesday June 17th morning
Salle C21 bâtiment Orbigny / Room C21 Orbigny building

Organisation du séminaire / Workshop planning

Lundi 16 juin / Monday June 16th

Ouverture de la journée e-Adapt / Opening session

14:00-14:15 : Accueil et mot d'introduction (Ronan Champagnat, responsable de l'équipe e-Adapt)

Séminaire externe : Laurent Gallon - Maître de Conférences HDR au LIUPPA (<https://iutmdm.fr>)

14:15-15:15

Titre : Telescol : suivi et évaluation du déploiement de robots de téléprésence dans le milieu scolaire.

Résumé : le ministère de l'éducation nationale a déployé à partir de 2021 environ 4000 robots de téléprésence dans les établissements scolaires français. Le projet Telescol avait pour objectif de faire le suivi et l'évaluation par la recherche de ce déploiement et de l'usage des robots, dans un contexte particulier des élèves malades et longuement éloignés de leur établissement scolaire. Dans ma présentation, je ferai un focus sur cette étude de cas réel, et puis particulièrement sur la récolte des données quantitatives et qualitatives (et les outils associés) qui nous ont permis de tirer (ou pas) des conclusions quant à l'impact du déploiement sur l'institution, l'efficacité de l'accompagnement des parties prenantes, et bien entendu l'impact sur les apprentissages des élèves empêchés.

Séminaire interne - Recherches prospectives

15:15-15:45 : Hayet Hammami

Titre : Designing with AI in Mind: Toward a Protocol for Responsible and Rigorous Use of LLMs in HCI Design and Evaluation

Résumé : As Large Language Models (LLMs) become increasingly integrated into the HCI design process, a major gap has emerged: there is still no structured protocol guiding when, how, and why to use them. This project proposes the development of a methodological framework to guide responsible and rigorous use of LLMs in the design process, with a particular focus on evaluation. Through a systematic exploration of key factors, such as persona diversity, prompt engineering, and model configuration, we aim to define when and how LLMs should

be used, what kind of insights they can reliably produce, and how to align their use with user-centered design principles. The result will be a set of evidence, based protocols, practical guidelines, and decision-making tools for designers and researchers working with AI-assisted design.

15:45-16:00 Pause café/Coffee break

Session « Travaux des doctorants » 1er partie

- 16:00 Ibrahim Cherrate

Titre : Amélioration de l'acceptation et de l'expérience utilisateur des navettes autonomes grâce à l'interaction humain-machine

- 16:25 Majed El Assal

Présentation des travaux de thèse

- 16:50 Mathilde Peillon

Titre : Solutions de maintenance prédictive pour le train à grande vitesse.

Résumé : L'objectif de ces travaux est de récupérer et traiter les données big data récupérées sur le TGV afin de les utiliser pour prédire les défaillances grâce à des algorithmes de machine learning.

Mardi 17 juin / Tuesday June 17th

Session « Travaux des doctorants » 2de partie

- 8:30 Walid Abdallaoui

Titre : Energy- and Cost-Aware Adaptive Data Replication for Smart City Services Within the Computing Continuum.

Résumé : Smart city services are typically data-intensive applications requiring strict Service Level Agreements (SLAs), such as ultra-low latency and high availability. Efficiently managing data across the heterogeneous edge-to-cloud continuum infrastructure is a major challenge that demands adaptive strategies capable of dynamically responding to changing network conditions and workload demands. Moreover, reducing operational costs and energy consumption is crucial to ensure the sustainability and economic viability of smart city services deployments. However, current state-of-the-art data replication approaches often overlook SLA compliance, cost, and energy efficiency simultaneously. This underscores the necessity for adaptive, SLA-aware data management solutions that guarantee reliable, efficient, and scalable data handling while minimizing cost and energy use, thus enabling the widespread and sustainable deployment of smart city services.

- 8:55 Mouhamet Latyr Ndiaye

Titre : Explicabilité des modèles NLP avec SHAP : le cas de la classification de contenus sensibles

- 9:20 Amira Abbes

Titre : Étude et mise en œuvre d'une méthode d'accompagnement et de personnalisation des scénarios d'apprentissage.

Séminaire interne - Recherches prospectives

9:20-9:50 : Arthur Baudet

Title : Raising Awareness on Environmental and Social Issues using Agent-Based Modeling — Applied to Urban Coastal Population

Summary : I will present my research prospect as a newly recruited associate professor at L3i, in the eAdapt team. The main objectives of my research will be to provide tools to help raise awareness on environmental and social issues. Specifically, I will be focusing on creating urban coastal population models to try and understand, and then use it to initiate discussion on the impact of our behavior on our environment.

To do so, I will implement agent-based models and explore different coupling with other methods and approaches to scientific mediation such as serious games as well as explore different human computer interfaces to interact with my models.

9:50-10:10 Pause café/Coffee break

Session « Derniers travaux publiés ou en cours de publication »

- 10:10 Ayoub Bellachia présentera l'article « VerifBFL: Leveraging zk-SNARKs for A Verifiable Blockchain Federated Learning » co-écrit avec Amine Bouchiha, Yacine Ghamri-Doudane et Mourad Rabah et publié dans les actes de NOMS'2025

Résumé : Blockchain-based Federated Learning (FL) is an emerging decentralized machine learning paradigm that enables model training without relying on a central server. Although some BFL frameworks are considered privacy-preserving, they are still vulnerable to various attacks, including inference and model poisoning. Additionally, most of these solutions employ strong trust assumptions among all participating entities or introduce incentive mechanisms to encourage collaboration, making them susceptible to multiple security flaws. This work presents VerifBFL, a trustless, privacy-preserving, and verifiable federated learning framework that integrates blockchain technology and cryptographic protocols. By employing zero-knowledge Succinct Non-Interactive Argument of Knowledge (zk-SNARKs) and incrementally verifiable computation (IVC), VerifBFL ensures the verifiability of both local training and aggregation processes. The proofs of training accuracy and aggregation are verified on-chain, guaranteeing the integrity and auditability of each participant's contributions. To protect training data from inference attacks, VerifBFL leverages differential privacy.

- 10:35 Meryem Dif présentera l'article « AutoDFL: A Scalable and Automated Reputation-Aware Decentralized Federated Learning » co-écrit avec Amine Bouchiha, Mourad Rabah et Yacine Ghamri-Doudane et publié dans les actes de NOMS'2025

Résumé : Blockchain federated learning (BFL) combines the concepts of federated learning and blockchain technology to enhance privacy, security, and transparency in collaborative machine learning models. However, implementing BFL frameworks poses challenges in terms of scalability and cost-effectiveness.

Reputation-aware BFL poses even more challenges, as blockchain validators are tasked with processing federated learning transactions along with the transactions that evaluate FL tasks and aggregate reputations. This leads to faster blockchain congestion and performance degradation. To improve BFL efficiency while increasing scalability and reducing on-chain reputation management costs, this paper proposes AutoDFL, a scalable and automated reputation-aware decentralized federated learning framework. AutoDFL leverages zk-Rollups as a Layer-2 scaling solution to boost the performance while maintaining the same level of security as the underlying Layer-1 blockchain. Moreover, AutoDFL introduces an automated and fair reputation model designed to incentivize federated learning actors.

- 11:00 Feriel Sellal présentera l'article « XAI-Driven Machine Learning System for Driving Style Recognition and Personalized Recommendations » co-écrit avec Ayoub Bellachia, Meryem Dif, Amine Bouchiha, Enguerrand De Rautlin et Yacine Ghamri-Doudane et en cours de soumission à VTC2025-Fall

Résumé : Artificial intelligence (AI) is increasingly used in the automotive industry for applications such as driving style classification, which aims to enhance road safety, improve efficiency, and personalize user experiences. While deep learning (DL) models, such as Long Short-Term Memory (LSTM) networks, achieve high performance in this domain, their black-box nature limits interpretability and trust. To address this challenge, we propose a machine learning (ML)-based approach that balances high accuracy with transparency. We introduce CARLA-Drive, a high-quality dataset generated using the CARLA simulator, and leverage ML techniques such as Random Forest (RF), XGBoost, and Support Vector Machine (SVM), which are efficient, lightweight, and inherently interpretable. Additionally, we apply the SHAP explainability method to provide personalized recommendations for safer driving. Achieving an accuracy of 0.92 on a three-class classification task with both RF and XGBoost classifiers, our approach rivals DL models in performance while remaining more transparent and practical for real-world deployment in intelligent transportation systems.

- 11:25 Ababacar Dioukhane présentera les travaux intitulés « Mitik-CT: Une approche passive pour l'inférence de contacts mobiles ».

Clôture de la journée e-Adapt / Closing session

11:50-12:10 Discussions conclusives

12:10-14:00 Déjeuner/Lunch