



LABORATOIRE  
AMÉNAGEMENT  
ÉCONOMIE  
TRANSPORTS

TRANSPORT  
URBAN PLANNING  
ECONOMICS  
LABORATORY

– Call for Abstracts –

## Workshop on the Use of Explainable AI in Transportation Research

24 – 25 April, 2025  
Lyon, France

We are pleased to invite you to participate in a workshop dedicated to the application of explainable AI in transportation research and spatial analysis. This event will be hosted by **LAET – ENTPE, University of Lyon, France**, on **24-25 April 2025**. The studies presented will be considered for **publication in a special issue** (TBD), emphasizing the importance of sharing this work with the broader academic community.

### Main Topic and Scope

The integration of AI methods, such as machine learning algorithms, is becoming increasingly prevalent in the analysis of transport behavior, needs, and outcomes within a spatial context. These methods offer significant advantages over traditional statistical and econometric techniques, primarily due to their ability to handle large volumes of data and uncover complex patterns that might otherwise remain hidden. AI techniques excel at prediction and pattern discovery, making them indispensable tools for forecasting and scenario analysis in transportation research.

However, the strength of AI in prediction often comes with a trade-off: a lack of inherent interpretability. While traditional methods provide clear explanations of effect sizes and causal relationships, AI models, particularly deep learning algorithms, are often criticized for being “black boxes.” This opacity poses a challenge for researchers and policymakers who need to understand the underlying mechanisms driving the predictions to make informed decisions. Therefore, the development and application of explainable AI tools have become crucial.

Explainable AI aims to bridge the gap between predictive power and interpretability. These tools enable researchers to extract meaningful insights from complex models, providing transparency and understanding that are essential for practical application. In transportation research, explainable AI can elucidate how different variables influence transport behavior, needs, and outcomes, thereby enhancing the value of AI-driven insights.

The scope of this workshop encompasses the use of explainable AI in various facets of transportation research and spatial analysis. We seek to explore how explainable AI can contribute to a deeper understanding of transport phenomena, support policy evaluation, and improve the design and implementation of transport systems and services. By focusing on the interpretability of AI models, we aim to promote the integration of these advanced techniques into mainstream transportation research, ensuring that the findings are not only accurate but also actionable.

This workshop will delve into the latest advancements in explainable AI methods and their application in transportation studies. Topics will include the adaptation of interpretable machine learning techniques to spatial data, the use of explainable AI for uncovering hidden patterns in human mobility, and the role of these tools in assessing the impacts of external factors such as pandemics and climate change on transport usage. Additionally, we will discuss the challenges and future directions in the field, emphasizing the importance of methodological rigor and the need for interdisciplinary collaboration.

By bringing together experts and emerging scholars, the workshop aims to create a platform for the exchange of ideas and best practices. Participants will have the opportunity to present their research, engage in in-depth discussions, and learn from leading practitioners in the field. Ultimately, the goal is to advance the state of knowledge in the application of explainable AI to transportation research, fostering innovation and enhancing the impact of AI-driven insights on policy and practice.

## **Aims**

This workshop aims to illuminate transport behavior, uncover needs regarding transport services and infrastructure, and evaluate policy impacts within a spatial framework. A burgeoning body of literature has begun to address these issues using explainable AI methods, such as interpretable machine learning techniques. Our objective is to convene advanced and emerging scholars engaged in this research to foster knowledge synthesis and transfer within the academic community. The workshop will emphasize methodological rigor and possess a strong pedagogical component.

**A key goal of the workshop is to disseminate the presented works in the form of a special issue, making them accessible to the wider scientific community.**

### **Topics of Interest**

We welcome contributions on the use of explainable AI in the following areas, though the list is not exhaustive:

- Spatial machine learning
- Use of data on urban mobility (e.g. smart phone data)
- Urban transport behavior and modal choice
- Transport demand
- Trip mode detection
- Pandemic effects on transport usage
- Transport, climate change, environment, and energy transition
- Analysis of the transportation industry
- Digitalization in the transport industry
- Methodological dimensions of explainable AI tools
- Urban form
- Traffic and road safety

### **Publication**

Papers presented at this workshop will be considered for publication in a special issue of a high-quality journal (TBD).

### **Venue**

The workshop is organized by LAET-ENTPE (University of Lyon) and will take place at room Espace Marc Bloch, at MSH Lyon St-Etienne 14 avenue Berthelot – 69363 Lyon, France.



Source: Google Maps.

## Participation and Fees

Participation is free. The workshop will begin at 13:30 on 24 April (half-day), followed by a full day of sessions on 25 April. Accommodation for two nights (24 and 25 April 2025) will be provided for one author per presentation.

## Abstract Submission

If you are interested in participating, please submit an abstract of approximately 250 words, including author names, affiliations, and keywords, to [mg.celbis@entpe.fr](mailto:mg.celbis@entpe.fr) by 1 March 2025. Notifications of abstract acceptance will be sent out by 8 March 2025.

## Organizing Committee

- Mehmet Guney Celbis, Researcher, LAET-ENTPE, University of Lyon.
- Louafi Bouzouina, Research Director, LAET-ENTPE, University of Lyon.

We look forward to your contributions and to a fruitful workshop.