Call for application:

Funding:

Project **to submit** to Bourgogne Franche Comté Region's ATRACT program in France, **before 02/06.** Post doc position for two years.

Admission Requirements:

-Theses defended or to be defended before October **outside Bourgogne Franche Comté Region**. -Statistics.

-Machine learning.

-Programming.

Contact:

Noura Dridi, noura.dridi@ens2m.fr

Stephane Chretien, stephane.chretien@univ-lyon2.fr

Subject:

In high-stakes fields like healthcare, criminal justice, and finance, reliable decision-making requires not only accurate predictions but also trustworthy uncertainty quantification. Conformal prediction provides valid, model-agnostic prediction sets. However, the impact of these prediction sets on human decision-making quality and trust remains to be explored, particularly in challenging scenarios such as class imbalance, limited data, or distributional shifts.

Mixed effects models (MEMs) offer a powerful way to capture both fixed and random effects, making them ideal for modeling hierarchical structures and real-world variability.

Mixed effects models and uncertainty quantification (UQ) are closely linked, especially in real-world settings where variability arises at multiple hierarchical levels (e.g., individuals, institutions, repeated measurements). They provide a principled framework for modeling structured uncertainty, which is essential for making informed, trustworthy decisions.

By combining MEMs with conformal inference, the project aims to both improve decision quality and trust, and enable more robust, uncertainty-aware decision support across levels of variation.