

MIAI MEETING

November 13th, 2025

PROGRAMME

11:00 am - 11:05 am : Introduction

11:05 am - 11:25 am : *Looking Around When in Doubt: More Robust and Explainable Road Detection with CAESAR,*
Anh-Thu Mai, 1st-year CIFRE PhD Student
STMicronics Grenoble & GIPSA-lab

11:25 am - 12:10 pm : *Toward a Theoretical Foundation of Deep Learning: An MDL Perspective,*
Yoshinari Takeishi, Assistant Professor
Faculty of Information Science and Electrical Engineering of
Kyushu University, Japan

12:10 pm - 12:35 pm : *Supporting AI Technology Transfer Projects,*
Christophe Poyet, Pôle Expertises
Linksium *(Presentation in french)*

12:35 pm - 1:05 pm : *Funding Opportunities for Research Projects in Europe for the MIAI Cluster Community, (Presentation in French)*
Marta Elzo Aizarna, Research Project Development Officer
UGA *(Presentation in french)*

1:05 pm - 2 pm : Lunch

DESCRIPTION

Anh-Thu Mai

Anh-Thu Mai will present the CAESAR framework (Context-Aware Explanations via Semantic Attribution and Refinement), an approach that enhances road object detection even under adverse conditions while producing adaptive visual explanations. CAESAR combines bottom-up and top-down processing inspired by human reasoning and adjusts its behavior based on uncertainty. This cognitively inspired strategy strengthens both the performance and the transparency of computer vision systems.

Yoshinari Takeishi

Deep learning has achieved great success, but its theoretical foundations remain unclear. Surprisingly, models with far more parameters than training samples still generalize well, contradicting classical overfitting theory.

The Minimum Description Length (MDL) principle helps explain this: the model with the shortest data codelength tends to generalize best. Barron and Cover's theorem supports this by giving an upper bound on MDL estimators' generalization error. In this talk, Yoshinari Takeishi will review MDL and the theorem, then apply them to simple neural networks. By studying the Fisher information matrix's eigenvalues, he proposes a new MDL-based estimator with a novel, tighter generalization error bound for large models.

Christophe Poyet *(Presentation in french)*

Christophe Poyet will present the specific elements that characterize a technology transfer project in artificial intelligence. He will discuss the most suitable support practices to ensure successful transfer, as well as the key factors that determine the success of such projects.

Marta Elzo Aizarna *(Presentation in french)*

During this presentation, an overview of European calls for proposals (CFPs) will be provided, including specific ones related to MIAI Cluster's research areas. Horizon Europe and other European research funds offer funding opportunities for researchers and faculty members. Several research calls will be presented in detail to better understand their objectives and the funders' expectations.