SÉMIN-AIRO

Série de séminaires en optimisation, apprentissage et prise de décision

Asefeh Hasani
Operations Research and AI Scientist at Termont - Montréal, QC

Managing Disruption Risks in Multimodal Transportation Systems

Abstract
The rapid growth of the freight transport industry raises concerns about its environmental impact, particularly its reliance on fossil fuels. Containerized intermodal transport offers a promising solution; however, its fast-paced nature and reliance on multiple transport modes make it vulnerable to disruptions. Even minor issues can cause delays, cancellations, and reduced efficiency. To ensure operational continuity, stakeholders—including shippers, carriers, and Logistics Service Providers—should adopt risk mitigation strategies. This talk examines strategies for managing disruptions and enhancing sustainability to improve system performance.

Bio
Mrs. Asefeh Hasani is an Operations Research (OR) and AI analyst specializing in supply chain management, sustainable logistics, and transportation systems. She holds a PhD in Systems Engineering from ÉTS and a graduate degree in Industrial Engineering from University of Tehran. She works at Termont (Port of Montréal), where she has contributed to initiatives including a digital twin for terminal operations. Her interests include optimization, logistics and transportation, data analytics, and sustainability-focused decision-making. She is affiliated with CIRRELT (including service on its EDI Committee as a student member), CIRODD, and GERAD, and has authored 22+ ISI-indexed journal papers

Thursday
January 29th
11h45

ÉTS - Pavillon A
Dept. Génie de Systèmes
Room A-3644.1

Open to all
Pizza and coffee offered

Organizer:
Fausto Errico

ÉTS DÉPARTEMENT de génie des systèmes

SÉMIN-AIRO

Série de séminaires en optimisation, apprentissage et prise de décision

Masih Aminbeidokhti
PhD Student, LIVIA and ILLS – ÉTS, Montréal, QC

LT-Soups: Bridging Head and Tail Classes via Subsampled Model Soups

Abstract

Real-world datasets typically exhibit long-tailed (LT) distributions, where a few head classes dominate, and many tail classes are severely underrepresented. While recent work shows that parameter-efficient fine-tuning (PEFT) methods like LoRA and AdaptFormer preserve tail-class performance on foundation models such as CLIP, we find that they do so at the cost of head-class accuracy. We identify the head-tail ratio, the proportion of head to tail classes, as a crucial but overlooked factor influencing this trade-off. Through controlled experiments on CIFAR100 with varying imbalance and head-tail ratios, we show that PEFT excels in tail-heavy scenarios but degrades in more balanced and head-heavy distributions. To overcome these limitations, we propose LT-Soups, a two-stage model soups framework designed to generalize across diverse LT regimes. In the first stage, LT-Soups averages models fine-tuned on balanced subsets to reduce head-class bias; in the second, it fine-tunes only the classifier on the full dataset to restore head-class accuracy. Experiments across six benchmark datasets show that LT-Soups achieves superior trade-offs compared to both PEFT and traditional model soups across a wide range of imbalance regimes.

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Bio

Masih Aminbeidokhti is a fifth-year PhD student affiliated with the LIVIA and ILLS laboratories, under the supervision of Prof. Marco Pedersoli and Prof. Eric Granger. His research focuses on robust fine-tuning and post-training methods for small vision and language models under distribution shift, with particular emphasis on ensemble methods, efficient data selection, and knowledge distillation from large-scale models..

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