Yassir BENDOU

Ph.D. Student in Machine Learning

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Google Scholar

Research Interests

Zero-Shot classification, Few-shot Learning, Multi-modal Learning, Self-supervised Learning, Robust optimization.

Education

Ph.D., Deep Learning, *IMT Atlantique* — **Brest, France**, *Nov 2021 - Present*

- Few-shot Learning, Multi-modal Learning, Zero-shot Out-of-Distribution, Robust optimization.
- Advisors: Prof. Vincent Gripon, Dr. Bastien Pasdeloup & Dr. Giulia Lioi.

Engineering Degree, *IMT Atlantique* — **Brest, France**, *2017 - 2021*

- Data Science, Statistics & Signal Processing
- Specialization: Mathematical Computer Engineering

Exchange Semester, *National University of Singapore* — **Singapour**, *Jan 2019 — June 2019*

- Computer Vision and Deep Learning

Preparatory Classes for French Engineering Schools, *Maths and Physics* — **Marrakech, Morocco**, *2015 — 2017*

- Calculus, Linear Algebra, Physics

Professional Experience

Sony R&D — **Stuttgart, Germany**
Research intern — *August 2022 — December 2023*

- I worked on predicting generalization of few-shot classifiers and on multi-modal few-shot learning.

INRIA (National Institue for Research in Digital Science and Technology) — **Grenoble, France**
Research Intern — *April 2021 — September 2021*

- Unsupervised Cross-Domain Adaptation for medical imaging (MRI and CT scans). Internship report for more details.
- Adversarial training, Object Localization

Amazon - Global Transportation Services — **Luxembourg**
Data Scientist - Fixed Term Contract — *Feb 2020 — August 2020*

- Time series forecasting of package arrival times. The goal was to optimize the speed and reliance of Amazon's transportation network. The model was eventually deployed in 3 countries impacting more than 2 Million packages per day.

Amazon - Global Transportation Services — **Luxembourg**
Data Scientist Intern — *August 2019— Feb 2020*

- Time series forecasting, A/B testing
- Automation scripts
- Managing the team's AWS infrastructure

RoboLab, IMT Atlantique — **Brest, France**
Research Intern — *July 2018*

- Comparison of multiple Human Pose Estimation methods on a collected dataset using a Kinect Camera.

Skills

Technical	Python (Pytorch, accelerate), Bash, SQL, Julia, AWS
Languages	English (fluent), French (native), Arabic (native)

Research

- Jonathan Lys, Frederic Lin, Clément BELIVEAU, Jules Decaestecker, Yassir BENDOU, Aymane Abdali, and Bastien Pasdeloup. "FICUS: Few-Shot Image Classification With Unsupervised Segmentation". In IEEE EUSIPCO 2024.
- Yassir Bendou, Bastien Pasdeloup, Giulia Lioi, Lukas Mauch, Fabien Cardinaux, Ghouthi Boukli Hacene, Vincent Gripon. "LLM meets Vision-Language Models for Zero-Shot One-Class Classification". Preprint 2024.
- Raphael Lafargue, Yassir Bendou, Bastien Pasdeloup, Jean-Philippe Diguet, Ian Reid, Vincent Gripon, Jack Valmadre. "Few and Fewer: Learning Better from Few Examples Using Fewer Base Classes". Preprint 2023.
- Yassir Bendou, Vincent Gripon, Bastien Pasdeloup, Giulia Lioi, Lukas Mauch, Fabien Cardinaux, Ghouthi Boukli Hacene. "Inferring Latent Class Statistics from Text for Robust Visual Few-Shot Learning". In NeurIPS'W, 2023.
- Yassir Bendou, Vincent Gripon, Bastien Pasdeloup, Giulia Lioi, Lukas Mauch, Stefan Uhlich, Fabien Cardinaux, Ghouthi Boukli Hacene, Javier Alonso Garcia. "A Statistical Model for Predicting Generalization in Few-Shot Classification". Best student paper nominee in IEEE EUSIPCO 2023.
- Yassir Bendou, Yuqing Hu, Raphael Lafargue, Giulia Lioi, Bastien Pasdeloup, Stéphane Pateux, Vincent Gripon. "EASY: Ensemble Augmented-Shot Y-shaped Learning: State-Of-The-Art Few-Shot Classification with Simple Ingredients". Best paper in Journal of Imaging 2022.

Open-source

- Collaborative platform dedicated to aiding individuals impacted by the Moroccan's earthquake in 2023. The goal is to coordinate timely assistance for everyone affected. The plateform received more than 2000 requests and 240 interventions were done through it. The project involved 30 participants. I was in charge of coordinating the technical team. I presented our work at NeurIPS affinity workshop for North Africans in ML 2023.
- Contributions to statinf, a library for statistics and causal inference with over 96k downloads where I added different Machine Learning models including K-means, a Gaussian Mixture model, Discriminant analysis models and bayesian linear regression.

Talks

- Lab-Sticc, Brest: Deep day. "Vision-language pre-trained models", 2024. Talk recording.
- Sony R&D, Stuttgart. "Inferring Latent Class Statistics from Text for Robust Visual Few-Shot Learning", 2023.
- EUSIPCO 2023 best student paper nominee, Helsinki. "A Statistical Model for Predicting Generalization in Few-Shot Classification", 2023.
- French Tech Meetup, Brest. "Few-shot Learning", 2022.

Teaching

- Efficient Deep Learning. Course Material.
- Introduction to Artificial Intelligence. Course Material.

Activities

- Climbing
- Teakwondo Instructor