Alexandre **Ramé**

PhD Student in deep learning for computer vision. Trying to make deep neural networks generalize out of distribution.
Currently research scientist intern at FAIR Meta AI.

Paris, France

☐ +33 6.32.17.09.14 | ✉ alexandre.rame.cl@gmail.com | ⌂ alexrame.github.io/ | ⬚ alexrame

Education

PhD in Computer Science and Deep Learning for Computer Vision   *Paris, France*

Sorbonne University (ISIR, MLIA)   *Advisor: Pr. Matthieu Cord*   *Ongoing: Mar 2020 - Dec 2023*

- PhD title: *Diversity in Deep Networks and Data to Boost Out-of-Distribution Generalization for Computer Vision.*
- Topics: ensembling, robustness, domain generalization and continual learning.

Master of Science in Operations Research GPA: 3.9 / 4.0   *New York, USA*

Columbia University   *Sep 2014 - May 2015*

- Majors: optimization and machine learning.
- Minors: deep learning, statistics and programming.

Diplôme d'Ingénieur Polytechnicien GPA: 3.7 / 4.0   *Palaiseau, France*

Ecole Polytechnique   *Sep 2011 - May 2014*

- Major: applied mathematics. optimization, statistics, stochastic finance, times series analysis and complex systems.
- Minors: computer science, economics, physics, entrepreneurship and mathematics.

MPSI - MP* Info   *Versailles, France*

Lycée Sainte-Geneviève   *Sep 2009 - Jul 2011*

Mathematics, physics and computer science.

Main Publications

Diverse Weight Averaging for Out-of-Distribution Generalization   *NeurIPS*

Alexandre Ramé, Matthieu Kirchmeyer, Thibaud Rahier, Alain Rakotomamonjy, Patrick Gallinari,   *2022*
Matthieu Cord

DyTox: Transformers for Continual Learning with DYnamic TOken eXpansion   *CVPR*

Arthur Douillard, Alexandre Ramé, Guillaume Couairon, Matthieu Cord   *2022*

Fishr: Invariant Gradient Variances for Out-of-distribution Generalization   *ICML*

Alexandre Ramé, Corentin Dancette, Matthieu Cord   *2022*

MixMo: Mixing Multiple Inputs for Multiple Outputs via Deep Subnetworks   *ICCV*

Alexandre Ramé, Remy Sun, Matthieu Cord   *2021*

**DICE: Diversity in Deep Ensembles via Conditional Redundancy Adversarial
Estimation**   *ICLR*

Alexandre Ramé, Matthieu Cord   *2021*

CORE: Color Regression for Multiple Colors Fashion Garments   *CVPRW*

Alexandre Ramé, Arthur Douillard, Charles Ollion   *2019*

**OMNIA Faster R-CNN: Detection in the Wild through Dataset Merging and Soft
Distillation**   *arXiv*

Alexandre Ramé, Emilien Garreau, Hedi Ben-Younes, Charles Ollion   *2018*

**Leveraging Weakly Annotated Data for Fashion Image Retrieval and Label
Prediction**   *ICCVW*

Charles Corbiere, Hedi Ben-Younes, Alexandre Ramé, Charles Ollion   *2017*

Experience

FAIR Meta AI   *Paris, France*
Research Scientist Intern in the Fairness and Robustness team   *Advisor: Dr. David Lopez-Paz*   *Ongoing: Sep 2022 - Dec 2022*
- First possible project: how to best **benefit from multiple small datasets** to improve domain generalization ?
- Second possible project: how to **continuously learn new domains** ?
- Third possible project: how to best tackle multiple **spurious correlations** simultaneously ?

Heuritech   *Paris, France*
Research Scientist in Deep Learning   *Advisor: Dr. Charles Ollion*   *Jan 2016 - Nov 2019*
- Main contributor of the **computer vision** pipeline. Implementing and improving SotA models.
- **Classification**: semi supervision, domain adaptation, incremental learning and image retrieval.
- **Object Detection**, with partially annotated datasets.

Flaminem   *Paris, France*
Research Engineer   *Sep 2015 - Dec 2015*
- Big data challenges to predict long-term purchase decision.

Claravista   *Paris, France*
Data Scientist Intern   *Advisor: Dr. Francis Bach*   *Apr 2014 - Jul 2014*
- Classification and clustering of internet behaviours.

Teaching

Teacher Assistant
Sorbonne Université · *Master level* · Deep Learning for Computer Vision   *Fall 2020 / Fall 2021*

Teacher Assistant
Data Science l'X-Paris Saclay · *Master level* · Deep Learning   *Fall 2017 / Fall 2018*

Volunteer Teacher and Youth Leader
Fondation D'Auteuil Sannois · Mathematics   *Nov 2011 - Mar 2012*

Skills

- **Programming Languages**:   Python · Shell · Scala · R · Latex
- **Data Science**:   PyTorch · Tensorflow / Keras · Theano · Scikit-Learn · Numpy · Pandas
- **Tools & OS**:   Linux · MacOs · Git · Jupyter · Vim · VSCode
- **Languages**:   French (native) · English (fluent) · Spanish (beginner)

Main Talks

ECML KDD, A Bias-Variance Analysis of Out-of-Distribution Generalization   *Grenoble, France | Sep 2022*

Facebook AI Research, Fishr for Domain Generalization   *Paris, France | Oct 2021*

Valeo.ai, Dice for Diversity in Deep Ensembles   *Paris, France | Mar 2021*

Paris Deep Learning Meetup #16, OMNIA Faster R-CNN for Semi-Supervised Object Detection   *Paris, France | Jan 2019*

Paris Deep Learning Meetup #6, Correlational Neural Networks for Multilingual Embeddings   *Paris, France | Feb 2017*