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Profile

Research Scientist with 7+ years of experience in deep learning and computer vision, specializing in transfer learning (multi-domain adaptation), responsible AI (bias detection & mitigation, machine unlearning), efficient learning (pruning, meta-learning) and generative models (diffusion). Proven track record of leading independent research directions from ideation and experimental design to publication at top-tier venues (ICML, CVPR, WACV, BMVC), coordinating multi-contributor projects and growing junior researchers through hands-on co-supervision.

Core Competences

- **Research Areas:** Transfer learning: multi-domain adaptation, few-shot learning · Responsible AI: bias, fairness, machine unlearning · Efficient AI: model pruning, data pruning, meta-learning · Generative models: diffusion models, image editing.
- **Technical Experience**: Python, PyTorch, Git, Weights & Biases, Hydra/OmegaCon.
- **Previous Experience**: TensorFlow, R, SQL.
- **Languages**: English (fluent), French (intermetdiate), Russian (native).

Work Experience

PostDoc **Télécom Paris, IDS, Multimedia team** **Nov 2023 - Apr 2026**

Led and co-led seven research projects spanning responsible AI, generative vision models and open vocabulary semantic segmentation, supervising 1 Master student and co-supervising 1 PhD student, 6 Master's students, and 2 research engineers. Five projects have resulted in, or are on track for, publications.

- *Text-Guided Image Editing — Specify and Edit (BMVC 2025):*
  - Proposed a pipeline that uses LLMs to decompose vague editing instructions into precise, executable steps, substantially reducing ambiguity in text-to-image editing. Created a dataset, ran evaluations and ablations, led the user-preference study.
- *Responsible AI — Bias Reduction and Amplification in Diffusion Models (WACV 2026):*
  - Contributed to method design and led the presentation strategy for an experimental pipeline to quantify how biases in training data are amplified in images generated with diffusion models; coordinated a multi-contributor project across Master's and engineering level researchers.
- *Responsible AI — Unbiased Subnetworks in Vision Models (CVPR 2026):*
  - Contributed to method design and evaluation for a technique that identifies bias-free subnetworks within standard classifiers, enabling fairness improvements without retraining from scratch; coordinated a multi-contributor project across PhD and Master's level researchers.
- *Data-Efficient Learning — Gradient-Based Data Pruning (in progress):*
  - Proposed a novel data selection method based on normalised gradient directions to identify the most informative training examples, reducing dataset size without sacrificing model quality; fully supervised a Master's level researcher.
- *Machine Unlearning — Subnetwork Analysis (in progress):*
  - Investigating how network initialisation and the lottery ticket hypothesis affect a model's ability to selectively forget training data, and studying robustness of unlearned models to quantization and fine-tuning; co-supervised Master's level researchers.

PhD Student **Inria, THOTH team** **Oct 2018 - Dec 2022**

Supervised by Jakob Verbeek and Karteek Alahari. Developed novel methods for knowledge transfer and few-shot learning, with a focus on probabilistic and parameter-efficient approaches.

- *Few-Shot Classification – Meta-Learning with Shared Amortised Variational Inference (ICML 2020):*
  - Introduced a generative model using shared VAE inference to produce task-specific probabilistic classifiers for streams of small-data tasks. Delivered strong accuracy improvements in low-data regimes relevant to personalization and domain adaptation applications.
- *Multi-Domain Learning – Modulation Adapters (arXiv 2023):*
  - Designed lightweight, learnable modulations of convolutional weight tensors that adapt a frozen backbone to multiple domains simultaneously – achieving competitive accuracy at a fraction of the parameter cost of full fine-tuning.

Research Intern **Inria, THOTH team** **Feb 2018 – Sep 2018**

- Developed Block PixelCNN, a structured autoregressive image generative model that improves generation quality through hierarchical block-level dependencies, under the supervision of Jakob Verbeek.

Research Intern **Bayesian Methods Research Group** **Dec 2015 – June 2017**

- Derived sparse representation learning via VAEs with spike-and-slab posterior and log-uniform prior; studied tensor decomposition methods for AIC-based feature selection. Supervised by Dmitry Vetrov.

Intern **Sberbank Technology** **July 2016 - Sep 2016**

- Managed a team of research students in the joint research project with Bayesian Methods Research Group on clustering clients via Latent Dirichlet Allocation (LDA) on transactions. Performed cleaning and pre-processing of data, trained LDA models, analyzed and interpreted the results, coordinated meetings and task assignments, prepared and presented the report.

Education

Grenoble **Université Grenoble Alpes** **Oct 2018 – Dec 2022**

- PhD in Mathematics and Informatics. MSTII Doctoral School Grant (awarded to top 2 students in the Master program).

Grenoble **Institut Polytechnique de Grenoble** **Oct 2017 – July 2018**

- MSc (M2) in Industrial and Applied Mathematics. GPA: 16.0/20.0 (”Très Bien”). IDEX Master Scholarship.

Moscow **Skolkovo Institute of Science and Technology** **Sept 2015 – June 2017**

- MSc in Computer Science. GPA: 4.0/4.0 (”With distinction”).

Moscow **Moscow Institute of Physics and Technology** **Sept 2011 – June 2015**

- BSc in Applied Mathematics and Physics. GPA: 8.7/10.0.

Academic Service & Recognition

- **Outstanding Reviewer:** ICML 2022 (top 10%).
- **Reviewing:** ICML, ICCV, ECCV, CVPR, WACV, BMVC; IEEE ToM, CVIU, TMLR.
- **Scholarships and Grants:** IDEX Master Scholarship, MSTII Doctoral School Grant.

Publications and Technical Reports

- Ivan Luiz De Moura Matos, Abdel Djalil Sad Saoud, **Ekaterina Iakovleva**, Vito Paolo Pastore, Enzo Tartaglione. “Bias In, Bias Out? Finding Unbiased Subnetworks in Vanilla Model”. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2026.
- Nathan Roos, **Ekaterina Iakovleva**, Ani Gjergji, Vito Paolo Pastore, Enzo Tartaglione. “How I Met Your Bias: Investigating Bias Amplification in Diffusion Models”. In *IEEE/CVF Winter Winter Conference on Applications of Computer Vision*, 2026.
- **Ekaterina Iakovleva***, Fabio Pizzati*, Philip Torr, Stéphane Lathuilière. “Specify and Edit: Overcoming Ambiguity in Text-Based Image Editing”. In *British Machine Vision Conference*, 2025.
- **Ekaterina Iakovleva**, Karteek Alahari, Jakob Verbeek. “Modulation Adapters for Multi-Domain Learning”. *arXiv preprint arXiv:2307.08528*, 2023.
- **Ekaterina Iakovleva**, Jakob Verbeek, Karteek Alahari. “Meta-Learning with Shared Amortized Variational Inference”. In *International Conference on Machine Learning*, 2020.