Sophia Sirko-Galouchenko

PhD Student in Computer Vision

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Summary

PhD student in computer vision working on self-supervised learning and multimodal large language models. Experience spans dense visual representations, self-supervised pretraining for autonomous driving, post-training of multimodal large language models. First author of multiple publications at top-tier conferences (NeurIPS, ICCV)

Research Interests

Multimodal models, post-training, self-supervised learning, vision-language models, visual grounding and spatial reasoning, dense scene understanding, knowledge distillation.

Education

2024–2027 **PhD student**, *Sorbonne Université (ISIR) & valeo.ai*, Paris
Self-supervised visual representations, multimodal learning and spatially grounded perception.
Supervisors: Nicolas Thome, Andrei Bursuc and Spyros Gidaris. Expected defense: March 2027.
Detailed achievements:
- 4 first-author papers: CVPR Workshop 2024, ICCV 2025, NeurIPS 2026, one under review.
- Self-supervised post-training of dense visual representations for in-context tasks (DIP).
- Self-supervised pretext tasks as instruction tuning data to make MLLMs rely on visual evidence (V-GIFT).
- On-policy self-distillation from grounded hints on synthetic scenes, transferring to real-image benchmarks (Where-OPD).

2022–2023 **M2 in Mathematics, Vision and Learning (Masters MVA)**, *ENS Paris-Saclay*, Paris
Courses in Deep Learning, Signal Processing with Machine Learning, Object Recognition, Speech and NLP, Time Series and Deep Learning for Medical Imaging.

2021–2022 **Master's Degree in Computer Science**, *Université Paris Dauphine–PSL*, Paris
Courses in Machine Learning and Decision Theory.

2017–2021 **Bachelor in Computer Science and Mathematics**, *Université Paris Dauphine–PSL*, Paris
Courses in Algebra, Optimization, Graph Algorithms, Probability, Machine Learning.

2017 **French Baccalaureate in Science with High Honors**, *Lycée Français Anne de Kyiv*, Kyiv, Ukraine
Specialization in Mathematics. Awarded an Excellence Scholarship for 5 years.

Publications

2026 **Where-OPD: Spatially Guided On-Policy Self-Distillation of MLLMs with Synthetic Scenes**, *Under review*
Sophia Sirko-Galouchenko, Monika Wysoczańska, Andrei Bursuc, Nicolas Thome, Spyros Gidaris
Highlight: On-policy self-distillation using synthetic scenes and visually grounded textual hints improves visual perception.

2026 **V-GIFT: Boosting Visual Instruction Tuning with Self-Supervised Guidance**, *NeurIPS 2026*
Sophia Sirko-Galouchenko, Monika Wysoczańska, Andrei Bursuc, Nicolas Thome, Spyros Gidaris
Highlight: SSL tasks are turned into visual instruction tuning data for MLLMs and added during instruction tuning stage. Even a small amount of visually grounded SSL-style supervision can go a long way toward unlocking better visual capabilities in MLLMs.

2025 **DIP: Unsupervised Dense In-Context Post-training of Visual Representations**, *ICCV 2025*
Sophia Sirko-Galouchenko, Spyros Gidaris, Antonin Vobecky, Andrei Bursuc, Nicolas Thome
Highlight: unsupervised post-training improving dense in-context scene understanding over DINOv2.

2024 **OccFeat: Self-supervised Occupancy Feature Prediction for Pretraining BEV Segmentation Networks**, *CVPR Workshop 2024*
Sophia Sirko-Galouchenko, Alexandre Boulch, Spyros Gidaris, Andrei Bursuc, Antonin Vobecky, Patrick Pérez, Renaud Marlet
Highlight: occupancy and distillation from DINO based self-supervised pretraining for bird's-eye-view networks in autonomous driving.

Experience

Professional Experience

2023–2025 **Research scientist**, *valeo.ai*, Paris, France
PhD contarct, working on Leveraging SSL techniques for fine-grained image understanding

2023 **6-months Internship**, *valeo.ai*, Paris, France
Self-supervised bird's-eye-view representation learning for autonomous driving, using occupancy prediction and distillation from a VFM as a pretext task.

2022 **Internship**, *Eurobios*, Paris, France
Convex optimization; work on database for a predictive model of the aging of a mechanical system; research on Active Learning.

2019 **Research Internship**, *CEREMADE, Université Paris Dauphine*, Paris, France
Mathematical study of the sphere packing problem, supervised by Dr. Afgoustidis; wrote a summary of sphere packing in 2 dimensions after Rogers.

Miscellaneous

2024–Today **Reviewer Duties**
Reviewer for ICCV 2025, NeurIPS 2025 and the CVPR 2024 Workshop on Autonomous Driving.

2024–2025 **Student Representative**, *valeo.ai*, Paris, France

2024 **Ellis Winter School on Foundation Models (FoMo)**, *UvA*, Amsterdam, Netherlands

2023 **Volunteer**, *ICCV 2023*, Paris, France

2015–2017 **Volunteer**, *Military Hospital of Kyiv*, Kyiv, Ukraine
Contacted sponsors and managed the budget for food supplies.

Research Collaborations

Nicolas Thome, Sorbonne Université (ISIR), Institut universitaire de France
Spyros Gidaris, valeo.ai
Andrei Bursuc, valeo.ai
Monika Wysoczańska, valeo.ai
Alexandre Boulch, valeo.ai
Renaud Marlet, valeo.ai & École des Ponts ParisTech (LIGM)
Antonin Vobecky, Meta FAIR (formerly valeo.ai)
Patrick Pérez, Kyutai (formerly valeo.ai)

Skills

Deep Learning PyTorch, Hugging Face Transformers, DeepSpeed, Weights & Biases, OpenCV, numpy, scipy.

Research expertise Self-supervised learning, vision-language models, knowledge distillation, visual grounding, dense representation learning, pre-training and post-training.

Other Python, Docker, SLURM, Git, LaTeX, Linux; prior experience with Java, R, SQL.

Languages **English** (fluent), **French** (fluent), **Ukrainian** (native)