Donald Shenaj

AI Researcher

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Research Interests

Federated Learning, Continual Learning, Domain Adaptation, Model Merging, Image Generation

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Work Experience

Oct. 2024 - Apr. 2025	**Research Intern**, Samsung Research UK. Supervisors: Umberto Michieli, Mete Ozay.
May 2023 - Nov. 2023	**Visiting Researcher**, Mila - Quebec AI Institute & Concordia University. Supervisor: Eugene Belilovsky.
Oct. 2021 - Sep. 2024	**Teaching Assistant**, University of Padova. M.Sc. courses: Computer Vision (22/23, 23/24), Scientific computing with python (22/23), Machine Learning (21/22, 23/24).
Mar. 2021 - Aug. 2021	**Research Intern / Master Thesis**, University of Padova, Department of Information Engineering, MEDIA research group. Supervisor: Pietro Zanuttigh.

Education

Oct. 2021 - Mar. 2025	**Ph.D. in Information Engineering**, University of Padova, Department of Information Engineering, LTTM research group. Thesis: Morphing Distributed and Transfer Learning Paradigms for Visual Understanding. Final reviewed version submitted on 2024/12/02. Supervisor: Pietro Zanuttigh. **Seasonal schools**: IEEE-EURASIP S3P 2024, GTTI 2024, Mila GFlowNet 2023, CIFAR DL+RL 2023, GTTI 2023, IEEE-DEI SSIE 2022, GTTI 2022.
Oct. 2019 - Sep. 2021	**M.Sc. in ICT for Internet and Multimedia**, University of Padova. Grade: 110/110 cum Laude. Thesis: Coarse-to-Fine Learning for Semantic Segmentation across Multiple Domains. Supervisor: Pietro Zanuttigh.
Sep. 2016 - Oct. 2019	**B.Sc. in Electronics Engineering for Energy and Information**, University of Bologna. Grade: 110/110 cum Laude. Thesis: Implementation and analysis of a vehicle counter system with Python and OpenCV. Supervisor: Enrico Paolini.

Skills

- Programming: C, C++, Python, Matlab/GNU Octave, Bash, VHDL, LabVIEW, Java, JavaScript
- Typesetting: LaTeX, Manim, Markdown, HTML, CSS
- Libraries: PyTorch, TensorFlow, Keras, OpenCV, Numpy, SciPy, Pandas, Matplotlib, Scikit-learn
- System: Linux, Git, HPC clusters, Slurm, Singularity, Docker
- Languages: Italian (Native), English (Professional), Albanian (Elementary), French (Elementary)

Interests

Programming, Rubik's Cubes, Music, Movies/TV Series, Skateboarding.

Reviewer

CVPR 2025, WACV 2025, IEEE TPAMI, IEEE TMM, Pattern Recognition, CVIU, MMSP 2024, ICML 2023 Workshops, ICPR 2022, Harms and Risks of AI in the Military (HRAIM)

Publications

Preprints

[P1] **D. Shenaj**, O. Bohdal, M. Ozay, P. Zanuttigh, U. Michieli, "LoRA.rar: Learning to Merge LoRAs via Hypernetworks for Subject-Style Conditioned Image Generation" (2024). `arXiv:2412.05148`.

Conferences

[C1] **D. Shenaj***, E. Fani*, M. Toldo, D. Caldarola, A. Tavera, U. Michieli[†], M. Ciccone[†], P. Zanuttigh[†], B. Caputo[†], "Learning Across Domains and Devices: Style-Driven Source-Free Domain Adaptation in Clustered Federated Learning", IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) [acceptance rate first round=22.3%], 2023.

[C2] **D. Shenaj**, M. Toldo, A. Rigon, P. Zanuttigh, "Asynchronous Federated Continual Learning", IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), FedVision Workshop, 2023.

[C3] G. Rizzoli, **D. Shenaj**, P. Zanuttigh, "Source-Free Domain Adaptation for RGB-D Semantic Segmentation with Vision Transformers", IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), Pretrain Workshop, 2024.

[C4] G. Rizzoli*, M. Caligiuri*, **D. Shenaj**, F. Barbato, P. Zanuttigh, "When Cars meet Drones: Hyperbolic Federated Learning for Source-Free Domain Adaptation in Adverse Weather", IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) [acceptance rate first round=12.1%], 2025.

Journals

[J1] **D. Shenaj**, F. Barbato, U. Michieli, P. Zanuttigh, "Continual coarse-to-fine domain adaptation in semantic segmentation", Image and Vision Computing (IMAVIS), 2022.

[J2] **D. Shenaj***, G. Rizzoli*, P. Zanuttigh, "Federated Learning in Computer Vision", IEEE Access, 2023.

* indicates equal contribution, [†] indicates equal supervision