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Donald Shenaj

Ph.D Student

Research Interests

Federated Learning, Continual Learning, Domain Adaptation, Computer Vision

Work Experience

May. 2023 - Nov. 2023 **Visiting Researcher**, Mila - Quebec AI Institute & Concordia University.
Supervisor: Eugene Belilovsky.

Oct. 2021 - Present **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 - August 2021 **Research Intern / Master Thesis**, University of Padova, Department of Information Engineering, MEDIA research group.
Supervisor: Pietro Zanuttigh.

Education

Oct. 2021 - Present **Ph.D. in Information Engineering**, University of Padova, Department of Information Engineering, LTTM research group.
Supervisor: Pietro Zanuttigh.
Research topic: Federated Learning for Computer Vision.
Seasonal schools: GTTI 2024, Mila GFlowNet 2023, CIFAR DL+RL 2023, GTTI 2023, IEEE/DEI SSIE 2022, GTTI 2022.

Oct. 2019 - Sept. 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.

Sept. 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.

Sept. 2011 - July 2016 **High School Diploma**, ITTS Leonardo Da Vinci, Rimini.
Grade: 100/100.
Thesis: Laser Harp with touch response.

Skills

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

Interests

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

Reviewer

IEEE TPAMI, IEEE TMM, Pattern Recognition, CVIU, MMSP2024, ICML 2023 Workshops, ICPR 2022

Publications

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.

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%], 2025.

* indicates equal contribution, † indicates equal supervision