# Marco Cotogni

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## WORK EXPERIENCE

**Research Scientist** | *Leonardo (Rome, Italy)* **Jul. 2023 – Ongoing**

- Research Scientist In Computer Vision and Deep Learning @ Leonardo Labs
- Scene-Text Super-Resolution
- Privacy Preserving Machine Learning

**Research Intern** | *Computer Vision Center, UAB (Barcelona, Spain)* **Feb. 2022 – Aug. 2022**

- Research Intern @ LeArning and Machine Perception (LAMP) group working on Continual and Representation Learning with Vision Transformers
- Paper under review @ **International Journal of Computer Vision (IJCV)**
- Supervisor: Dr. Joost van de Weijer

**Research Intern** | *A.I. Lab., University of Ljubljana (Ljubljana, Slovenia)* **Feb. 2020 – Aug. 2020**

- Research Intern @ Artificial Intelligence Lab (A.I. Lab.) working on the development of machine learning algorithms for prediction of PD progression.
- Paper Published @ **Artificial Intelligence in MEdicine (AIME) Conference 2021**
- Paper Published @ **Journal of Parkinson's Disease**
- Supervisor: Prof. Aleksander Sadikov

**Academic Tutor** | *University of Pavia (Pavia, Italy)* **Sep. 2017 – Sept 2023**

- Academic Tutor for the courses of Programming (C), Object Oriented Programming (Java), Machine Learning (Python)

**Intern Backend Developer** | *DVR Italia (Milan, Italy)* **Jun. 2014 – Jul 2014**

- Intern Backend Developer working on CRM

## EDUCATION

**Ph.D. in Computer Science** | *University of Pavia (Pavia, Italy)* **Oct. 2020 – Feb. 2024**

- Thesis: "Deep And Reinforcement Learning Approaches for Computational Photography"
- Image Enhancement, Continual Learning, Image Processing, Computational Photography.
- Supervisor: Prof. Claudio Cusano
- Schools:
  - RegML2021: Regularization Methods for Machine Learning. University of Genoa & Machine Learning Genoa Center
  - CVCC2021: Computer Vision Crash Course. University of Genoa & Machine Learning Genoa Center.
  - Machine Learning and its Application in Cancer Genomics. University of Pavia.
  - VisMac2021: MAChine VISion. CVPL & University of Palermo.
  - Discovering the Unknown: AI in Healthcare. University of Pavia.
  - ML x Health & ML x Finance. Oxford Machine Learning Summer School AI for global goals. AI for global goals, University of Oxford's Deep Medicine and CIFAR.

**Master in Computer Engineering** | *University of Pavia (Pavia, Italy)* **Oct. 2018 – Sep. 2020**

- GPA: **29.41/30** - Final grade: **110/110 with honours**
- Thesis: "Analysis of Clinical Predictors to Study Disease Progression in De Novo Parkinson's Patients"
- Supervisors: Proff. Lucia Sacchi & Aleksander Sadikov

**Bachelor in Computer Engineering** | *University of Pavia (Pavia, Italy)* **Oct. 2015 – Sep. 2018**

- GPA: **27.30/30** - Final grade: **107/110**
- Thesis: "Comparing Deep Convolutional Neural Networks for image segmentation"
- Supervisor: Prof. Giuseppe Lisanti

## SKILLS

**Programming Languages** |

- Python, Java, C, R, SQL, Assembly (MIPS)

**Python Frameworks** |

- Pytorch, Numpy, Pandas, Matplotlib, Scikit-Learn

**Research Interests** |

- Computer Vision, Deep Learning, Image Processing, Neural Networks, Data Analysis, Reinforcement Learning, Continual Learning, Representation Learning, Self-Supervised Learning, Dataset Distillation, Privacy Preserving Machine Learning

**Languages** |

- Italian (Native), English (Fluent), Spanish (Basic), French (Basic)

**Hobbies** |

- Sport and Workout, TV Series, Yellow Books

## MAIN PUBLICATIONS

**Int. Conf. on Computer Vision and Pattern Recognition (CVPR2024)** | *Conference (under review)* **Nov. 2023**

- "DUCK: Distance-based Unlearning via Centroid Kinematics", **M. Cotogni**, J. Bonato, L. Sabetta, F. Pelosin, A. Nicolosi

**Pattern Recognition Letters** | *Journal (under review)* **Aug. 2023**

- "Select & Enhance: Masked-Based Image Enhancement Through Tree-Search Theory and Deep Reinforcement Learning", **M. Cotogni**, C. Cusano

**International Journal of Computer Vision** | *Journal (under review)* **Jul. 2023**

- "Exemplar-free Continual Learning of Vision Transformers via Gated Class-Attention and Cascaded Feature Drift Compensation", **M. Cotogni**, F. Yang, C. Cusano, AD. Bagdanov, J. van de Weijer

**IEEE Transactions on MultiMedia** | *Journal (under review)* **Jun. 2023**

- "Photostyle60: A photographic style dataset for photo authorship attribution and photographic style transfer", **M. Cotogni**, A. Arazzi, C. Cusano

**Multimedia Tools and APplications** | *Journal* **Apr. 2023**

- "Explaining image enhancement black-box methods through a path planning based algorithm", **M. Cotogni**, C. Cusano

**Pattern Recognition** | *Journal* **Dec. 2022**

- "Treenhance: A tree search method for low-light image enhancement", **M. Cotogni**, C. Cusano

**Neurocomputing** | *Journal* **Jun. 2022**

- "Offset equivariant networks and their applications", **M. Cotogni**, C. Cusano

**International Conference on Pattern Recognition (ICPR2020)** | *Conference* **Jan. 2021**

- "Recursive recognition of offline handwritten mathematical expressions", **M. Cotogni**, C. Cusano, A. Nocera

## ADDITIONAL PUBLICATIONS

**IEEE International Ultrasound Symposium (IUS2023)** | *Conference* **Sept. 2023**

- "Deep semantic segmentation of echocardiographic images using vision transformers", E. Bosco, F. Casula, **M. Cotogni**, C. Cusano, G. Matrone

**IEEE International Ultrasound Symposium (IUS2023)** | *Conference* **Sept. 2023**

- "Image-to-image translation with deep neural networks for the enhancement of monostatic synthetic-aperture ultrasound images", E. Bosco, C. Stellino, **M. Cotogni**, C. Cusano, A. Ramalli, G. Matrone

**Applied Soft Computing** | *Journal (under review)* **Jun. 2023**

- "A multiclass graph neural network-based framework for predicting post engagement in social media", M. Arazzi, **M.Cotogni**, A. Nocera, D. Ursino, L. Virgili

**ACM International conference on Multimedia Retrieval (ICMR2023)** | *Conference* **Jun. 2023**

- "Predicting tweet engagement with graph neural network", M. Arazzi, **M.Cotogni**, A. Nocera, L. Virgili

**Artificial Intelligence in MEdicine (AIME2021)** | *Conference* **Apr. 2021**

- "Detection of parkinson's disease early progressors using routine clinical predictors", **M.Cotogni**, L. Sacchi, D. Georgiev, A. Sadikov

**Journal of Parkinson's Disease** | *Journal* **Oct. 2021**

- "Asymmetry at disease onset is not a predictor of parkinson's disease progressi", **M.Cotogni**, L. Sacchi, A. Sadikov, D. Georgiev

## EDITORIAL ACTIVITY

**Conferences** |

- ESORICS2023, ECML-PKDD2023, ICMR2023, Neurips2023, ICLR2024, ICML2024, ECML-PKDD2024

**Journals** |

- Pattern Recognition Letters, Neurocomputing, IEEE MultiMedia, Information Sciences, Machine Learning, Neural Networks, Image and Vision Computing.