Matteo Ciotola, Ph.D. Student

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Education

2024 – … 🔖 **Post-Doctoral Student, University Federico II**, Deep Learning methods for Remote sensing data.

2020 – 2024 🔖 **Ph.D., University Federico II**, Deep learning for data fusion in remote sensing and beyond.

2018 – 2020 🔖 **M.Sc. Automation Engineering, University Federico II,** · 110 *cum laude*/110.
Thesis title: *Deep Learning methods for super-resolution and cloud removal for Sentinel-2 images*.

2014 – 2018 🔖 **B.Sc. Automation Engineering, University Federico II,** · 101/110.
Thesis title: *Cloud-based environmental monitoring system for fire detection*.

Skills

Languages 🔖 Strong reading, writing and speaking competencies in English and Spanish.

Coding 🔖 Python, C++, MATLAB, Simulink, PLC, LaTeX.

Machine Learning libs 🔖 PyTorch, TensorFlow, Keras, scikit-learn.

Controls 🔖 Modelling physics systems, multivariable linear control, optimal control, non-linear control.

2D/3D Design 🔖 CATIA, Solidworks.

Teaching Activities

2020 – ... 🔖 **Teaching support**, "Image Processing for Computer Vision" course at University Federico II

2023 🔖 **Tutorial**, "HD-03: Pansharpening by convolutional neural networks" at International Geoscience and Remote Sensing Symposium (IGARSS)

2022 🔖 **Tutorial**, "Image Fusion - Pansharpening by Convolutional Neural Network" at IEEE GRSS IADF School on Computer Vision for Earth Observation

Research Publications

Journal Articles

1 M. Ciotola, G. Poggi, and G. Scarpa, "Unsupervised deep learning-based pansharpening with jointly enhanced spectral and spatial fidelity," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 61, pp. 1–17, 2023.

2 M. Ciotola and G. Scarpa, "Fast full-resolution target-adaptive cnn-based pansharpening framework," *Remote Sensing*, vol. 15, no. 2, p. 319, 2023.

3 G. Guarino, M. Ciotola, G. Vivone, G. Poggi, and G. Scarpa, "Pca-cnn hybrid approach for hyperspectral pansharpening," *IEEE Geoscience and Remote Sensing Letters*, vol. 20, pp. 1–5, 2023.

4 G. Guarino, M. Ciotola, G. Vivone, and G. Scarpa, "Band-wise hyperspectral image pansharpening using cnn model propagation," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–18, 2023.

5 M. Ciotola, S. Vitale, A. Mazza, G. Poggi, and G. Scarpa, "Pansharpening by convolutional neural networks in the full resolution framework," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1–17, 2022.

6 G. Scarpa and M. Ciotola, "Full-resolution quality assessment for pansharpening," *Remote Sensing*, vol. 14, no. 8, p. 1808, 2022.

Conference Proceedings

1 M. Ciotola, G. Guarino, A. Mazza, G. Poggi, and G. Scarpa, "Pansharpening by efficient and fast unsupervised target-adaptive cnn," in *2023 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, 2023, pp. 5579–5582.

2 G. Guarino, M. Ciotola, G. Vivone, G. Poggi, and G. Scarpa, "An unsupervised cnn-based hyperspectral pansharpening method," in *2023 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, 2023, pp. 5982–5985.

3 A. Mazza, M. Ciotola, G. Poggi, and G. Scarpa, "Synergic use of sar and optical data for feature extraction," in *2023 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, 2023, pp. 2061–2064.

4 M. Ciotola, A. Martinelli, A. Mazza, and G. Scarpa, "An adversarial training framework for sentinel-2 image super-resolution," in *2022 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, IEEE, 2022, pp. 3782–3785.

5 M. Ciotola, M. Ragosta, G. Poggi, and G. Scarpa, "A full-resolution training framework for sentinel-2 image fusion," in *2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, IEEE, 2021, pp. 1260–1263.

Professional Experience

Abroad Periods

03/20 -– 09/20	**Traineeship**, Maison de la télédétection, Centre de coopération internationale en recherche agronomique pour le développement (Cirad)
11/22 — 01/23	**Visiting PhD Student**, Observation de l'environnement par imagerie complexe (Obelix) research team, Université Bretagne Sud

Prizes

2023	**Prof. Francesco Carassa Award**, conferred by Gruppo Telecomunicazioni e Tecnologie dell'Informazione (GTTI) and National Inter-University Consortium for Telecommunications (CNIT) - Rome, 12th September 2023.

Certification

2021	**Government exam and Licensed as a professional engineer**, Ordine degli Ingegneri della Provincia di Napoli.