Guido Ascenso

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29/01/2025

Experience

Interim Project Manager • **CLImate INTelligence project** • **Politecnico di Milano, Italy**
MAR 2023 – MAR 2024

Overseeing the timely completion of project milestones and deliverables, reviewing and ensuring the quality of internal documents to be submitted to the funding agency, and organizing and moderating management board meetings and general assemblies, for a consortium of over 70 researchers from 15 international institutions.

Postdoctoral researcher • **Environmental Intelligence Lab** • **Politecnico di Milano, Italy**
MAY 2021 – Now

Within the CLINT project: acquisition and curation of large climate datasets (ERA5, MERRA2, MSWEP, GRIDSAT-B1, IBTrACS, STORM); deep learning-based analysis of different aspects of tropical cyclones: genesis, intensity, rainfall; revision of project deliverables and milestones, particularly ones related to machine learning methods.

Within the MELTED project: causal analysis of the links between large-scale climate patterns and arctic sea ice; deep learning-based forecasting of arctic sea ice thickness.

Within the SOSWater project: construction of machine learning models for predicting water use at the country level across the globe.

General duties: supervision of several MSc and PhD students; inter-lab seminars on scientific writing; inter-lab training on basic Python and TensorFlow usage; co-writing of research proposals.

Education

SEP 2021
PhD in Deep Learning, Manchester Metropolitan University, Manchester, UK

SEP 2016
MSc in Sports Biomechanics, Robert Gordon University, Aberdeen, UK

SEP 2015
BSc in Biomedical Engineering, Politecnico di Milano, Milan, Italy

Technical skills

- Python
- Xarray
- Numpy
- TensorFlow
- Git/GitHub
- LaTeX
- MS suite
- VS code

Selected publications

1. Ascenso, G., Ficchì, A., Giuliani, M., Scoccimarro, E. and Castelletti, A., 2024. Downscaling, bias correction, and spatial adjustment of extreme tropical cyclone rainfall in ERA5 using deep learning. *Weather and Climate Extremes*, *46*, p.100724.
2. Ascenso, G., Palcic, G., Scoccimarro, E. and Castelletti, A., 2024. A systematic framework for data augmentation for tropical cyclone intensity estimation using deep learning. *Journal of Geophysical Research: Machine Learning and Computation*, *1*(3), p.e2024JH000206.
3. Salcedo-Sanz, S., Pérez-Aracil, J., Ascenso, G., Del Ser, J., Casillas-Pérez, D., Kadow, C., Fister, D., Barriopedro, D., García-Herrera, R., Giuliani, M. and Castelletti, A., 2024. Analysis, characterization, prediction, and attribution of extreme atmospheric events with machine learning and deep learning techniques: a review. *Theoretical and Applied Climatology*, *155*(1), pp.1-44.
4. Cavicchia, L., Scoccimarro, E., Ascenso, G., Castelletti, A., Giuliani, M. and Gualdi, S., 2023. Tropical Cyclone Genesis Potential Indices in a New High-Resolution Climate Models Ensemble: Limitations and Way Forward. *Geophysical Research Letters*, *50*(11), p.e2023GL103001.
5. Ascenso, G., Cavicchia, L., Scoccimarro, E. and Castelletti, A., 2023. Optimisation-based refinement of genesis indices for tropical cyclones. *Environmental Research Communications*, *5*(2), p.021001.

Selected conference talks and posters

1. Ascenso, G., Ficchì, A., Giuliani, M., Scoccimarro, E. and Castelletti, A., 2024, May. Downscaling and Bias Correction of Extreme Tropical Cyclone Rainfall in ERA5 Using Deep Learning. In *36th Conference on Hurricanes and Tropical Meteorology*. AMS.
2. Ascenso, G., Ficchı, A., Giuliani, M., Castelletti, A., Cavicchia, L. and Scoccimarro, E., 2023, February. Improving the spatial accuracy of extreme tropical cyclone rainfall in ERA5 using deep learning. In EGU General Assembly Conference Abstracts, pages EGU–8085.
3. Ficchì, A., Ascenso, G., Giuliani, M., Scoccimarro, E., Magnusson, L., Emerton, R., Stephens, E. and Castelletti, A., 2023, May. Machine-learning enhanced forecast of tropical cyclone rainfall for anticipatory humanitarian action. In *EGU General Assembly Conference Abstracts* (pp. EGU-15188).
4. Ascenso, G., Palcic, G., Scoccimarro, E., Giuliani, M. and Castelletti, A., 2024. *A Systematic Framework for Data Augmentation for Tropical Cyclone Intensity Estimation Using Deep Learning* (No. EGU24-8955). Copernicus Meetings.
5. Dainelli, F., Ascenso, G., Scoccimarro, E., Giuliani, M. and Castelletti, A., 2024. *Rethinking Tropical Cyclone Genesis Potential Indices via Feature Selection* (No. EGU24-5616). Copernicus Meetings.
6. Ascenso, G., Ficchì, A., Scoccimarro, E., Giuliani, M. and Castelletti, A., Enhancing tropical cyclone rainfall reanalysis and forecasts for anticipatory actions using deep learning, SISC2023.