ENRICO LATTUADA
Postdoctoral Researcher

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Experience

Postdoctoral Researcher, *University of Vienna, Faculty of Physics*, Prof. Roberto Cerbino |
Vienna, AT   *Mar 2022 - Present*
- Contributed to the establishment of two laboratories within the group, specializing in Microscopy/Optics and Chemistry.
- Managed and conducted experimental investigation of non-equilibrium effects in sedimentation, measuring multiscale dynamics of samples from microscopy videos with Fourier Trasformed image correlation analysis (Differential Dynamic Microscopy).
- Boosted group efficiency by accelerating image analysis using GPU-based Fast Fourier Transform, cutting down analysis time from hours to seconds.

Postdoctoral Researcher, *Sapienza University of Rome, Department of Physics*, Prof.
Francesco Sciortino | Rome, IT   *Dec 2018 - Feb 2022*
- Engineered a blended scattering/imaging setup for spatially-resolved dynamics measurement of colloidal samples through image correlation analysis (Photon Correlation Imaging).
- Developed DNA nanostar gels for biomedical applications and characterized their properties using advanced optical and microscopy techniques.

Education

PhD in Industrial Chemistry and Chemical Engineering, *Polytechnic of Milan* | Milan, IT | with honors | Thesis   *Nov 2015 - Oct 2018*
MSc in Nuclear Engineering, *Polytechnic of Milan* | Milan, IT | 110/110 (with honors) | Thesis   *Oct 2012 - Apr 2015*
BSc in Energy Engineering, *Polytechnic of Milan* | Milan, IT | 103/110   *Sep 2009 - Sep 2012*

Skills

Technical	Image processing, Optical and Confocal Microscopy, Advanced Optical Techniques, Statistical Analysis, High-Performance Computing, Test-driven Development.
Programming	Python (NumPy, Pandas, Scipy, Scikit-Learn, Matplotlib, Seaborn), C++, CUDA, CMake, Matlab, Git/GitHub.
Software	Windows/Linux/MacOS, Fiji/ImageJ, Blender, Fusion360, LabVIEW.
Soft Skills	Problem-solving, Collaboration, Effective Communication, Creativity, Project Management, Adaptability, Continuous Learning.
Languages	English (professional proficiency, FCE B2), Italian (mother tongue), German (basic proficiency, A1).

Projects

FastDDM (https://github.com/somexlab/fastddm)   *Sep 2022 - Present*
Open-source Python library for Differential Dynamic Microscopy analysis
- Developed an open-source Python/C++/CUDA library for the analysis of Differential Dynamic Microscopy experiments, to measure the multiscale dynamics of colloidal and biological samples from large microscopy image sequences.
- Created an accompanying tutorial to democratize the technique.

Certificates & Training

Machine Learning for Materials Hard and Soft, *Erwin Schrödinger Institute* | Vienna, AT   *11-22 Jul 2022*
Bombannes Summer School on Scattering Applied to Soft Condensed Matter, Carcans-Maubuisson, FR   *20-28 Jun 2022*
Google Advanced Data Analytics, *Coursera* | Certificate   *4 Feb 2024*
GitHub Fundamentals – Administration basics and product features, *Microsoft Learn* | Certificate   *11 May 2023*

Achievements

Lise Meitner postdoctoral fellowship, FWF (Austrian Science Fund) | 177.980,00€   *2022*
Best poster, Italian Soft Days 3rd edition | Padua, IT   *2018*
Second best communication, 103rd National Congress of the Italian Physical Society | Trento, IT   *2017*

Other Activities

Teaching	Co-supervised and provided support to more than 20 international graduate and post-graduate students. Performed occasional teaching assistant duties (e.g., 'Scientific Image Processing' at the University of Vienna).
Communication	Contributed to international conferences with 10 talks and posters. Published 10 scientific articles in well-established, international journals, most of them (8) as first author.