# CS PhD Seminar Series

April 24th     |     14:30-15:30     |     Room 214

## Fair termination for resource-aware active objects

Active object systems are a model of distributed computation that has been adopted for modelling distributed systems and business process workflows. This field of modelling is, in essence, concurrent and resource-aware, motivating the development of resource-aware formalisations on the active object model. Particularly, graded modalities have been studied to develop resource-aware calculi and type systems, although scarcely for the concurrent domain. In this work we consider this formalisation technique and propose a core calculus for resource-aware active objects along with a type system that guarantees fair termination, that is, that all workflows terminate under a suitable fairness assumption. This implies desirable concurrency properties such as livelock freedom and the absence of orphan messages.



Speaker: **Ulises Torrella**

Ulises is a second-year PhD student from the Western Norway University of Applied Sciences who is currently doing a three-month research stay at the University of Genoa. He's originally from Córdoba, Argentina, where he obtained both his undergraduate and graduate degrees in Computer Science at the National University of Córdoba. He is studying formal methods in software engineering and is currently collaborating with Francesco Dagnino, Elena Zucca and Paola Giannini on graded semantics and type systems for active objects.

## Efficient Learning under Covariate Shift using Random Projection

Covariate shift is examined in the setting of nonparametric regression within Reproducing Kernel Hilbert Spaces (RKHSs). It refers to the scenario in supervised learning where the input distributions differ between the training and test data, introducing significant challenges for reliable model performance. Kernel methods, while offering strong statistical guarantees, suffer from scalability issues due to their substantial computational and memory requirements, especially with large datasets. To mitigate these limitations, the objective is to investigate the balance between computational efficiency and statistical accuracy in the presence of covariate shift.

Speaker: **Arnaud Watusadisi**

Arnaud Watusadisi is a final-year Ph.D. candidate in Computer Science at the University of Genoa, Italy. He holds a dual Master's degree in Mathematical Sciences, with a specialization in Big Data and Artificial Intelligence, obtained from the African Institute for Mathematical Sciences (AIMS) in Senegal. He is currently conducting his research at the Machine Learning Genoa (MaLGa) center, in collaboration with the company Leonardo Labs, under the supervision of Professor Lorenzo Rosasco. His research focuses on statistical learning theory, time series, and anomaly detection.



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