



Editorial

Journal: *Robust and Intelligent Control: Theory and Applications*

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For decades, robust and intelligent control have been developing in parallel, sometimes convergently, but often separately. One aims for the absolute guarantee of stability margins; the other, the flexibility of soft computing methods (neural networks, fuzzy logic). The time has come to bridge this gap, no longer out of mere interdisciplinary curiosity, but out of practical necessity for the next generation of systems. Indeed, as the field of control for complex systems reaches a decisive turning point, we are launching the first issue of *Robust and Intelligent Control: Theory and Applications (RICTA)*.

The fundamental tools of robust control have enabled us to pilot vehicles (airplanes, drones, trains, etc.), stabilize electrical grids in the face of fluctuations, and much more, while ensuring safety in the presence of controlled uncertainties. However, as our ambitions expand to more complex systems (swarms of connected autonomous vehicles, human intervention, navigation in hostile environments, etc.), the very nature of uncertainty evolves. It is no longer limited to unmodeled dynamics but also encompasses unforeseen human behavior, errors in the semantic interpretation of scenes, and the non-stationarity of data distributions. Conversely, intelligent control tools (such as reinforcement learning, deep neural networks, and evolutionary algorithms) excel precisely in these environments. They learn policies from data for which no analytical model exists. However, when faced with a slight change in the domain or a sophisticated attack, we see the limitations and fragility of this type of controller. Indeed: intelligence without robustness is fragile, and robustness without intelligence is restrictive.

Furthermore, while articles on “AI for control” often rely solely on complex simulations without proof of stability, the RICTA journal aims to fill this gap by encouraging theoretical contributions backed by a stability guarantee (Stability/Control Certification). Naturally, this theoretical work must demonstrate its impact through non-trivial experimental or numerical applications. Indeed, contributions to the Applications section must clearly explain the guaranteed control principle underlying their success and certification, going beyond simple heuristic tuning.

The research scope of this journal is thus structured around two interdependent pillars: Theory and Applications.

We invite rigorous theoretical contributions that address fundamental practical questions. The editorial board is committed to conducting a rigorous, constructive, and rapid review process. Let’s define together what it means for a system to be not just smart, and not just safe, but Robust and Intelligent.

Welcome to Volume 1, Issue 1.

Conflicts of Interest

The author declares no conflict of interest.

Use of AI and AI-Assisted Technologies

No AI tools were utilized for this paper.

