

Invited Speaker 4

Invited Speech Title: **Artificial Immune Ecosystems: challenges for a new generation of bio-inspired secure and resilient systems**



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immune ecosystems, evolutionary strategies for optimisation and anomaly detection, as well as emergent properties of human organisations.

Abstract: The rapid evolution of IT ecosystems significantly challenges the security models our infrastructures rely on. Beyond the old dichotomy between open and closed systems, it is now necessary to securely handle the interaction between heterogeneous devices building dynamic ecosystems. To this regard, bio-inspired approaches provide a rich set of conceptual tools, but have failed to lay the basis for robust and efficient solutions. Our research effort intends to revisit the contribution of artificial immune system research to bring immune properties: security, resilience, distribution, memory, into IT infrastructures. We introduce the concept of artificial immune ecosystems, which encompass a comprehensive immune protocol, libraries for detection and investigation of anomalies, and an underlying middleware layer, for bringing immunity to IT infrastructures, the Cloud, and IoT environment.