

# **A BIOLOGICALLY INSPIRED FRAMEWORK FOR CRITICAL INFRASTRUCTURE PROTECTION**

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## **Abstract**

The purpose of this work is to develop an autonomic risk management framework capable to prevent, identify and respond in critical time to threats. Our focus is on protecting critical infrastructure (e.g. public utilities) which vitally depends on network and information security. As solution we propose a holonic Cybersecurity system that unfolds into an emergency response management infrastructure capable to react in due time to unknown and new kinds of attacks/threats. The system can adapt to its changing environment through its self-organizing capability which embraces all the desired attributes of autonomic computing (AC). Mimicking the way immunity works in biological organisms the system can dynamically adapt to embrace new risk situations and can dynamically create and learn new risk models as it encounters new risk situations.

Keywords. Autonomic computing, risk management, holonic, self-organization, multi-agent systems.