

## **Title: "SiHoneypot: a Digital Twin-based honeypot for Autonomous Vehicles"**

### **Abstract**

Autonomous Vehicles (AVs) stand as the vanguard of the automotive industry's evolution, offering a multitude of advantages in terms of transportation efficiency and applications of critical importance. Notably, their interconnection with various smart devices, such as smartphones and associated services, is achieved effortlessly. However, these merits are counterbalanced by significant security risks pertaining to human safety and the potential exposure of personal data. This work introduces SiHoneypot, an innovative honeypot system rigorously crafted to address security challenges intrinsic to AVs. SiHoneypot leverages Digital Twins and incorporates state-of-the-art trends in software deployment, providing a faithful emulation of Autonomous Vehicle systems. Demonstrating its efficacy as a strategic decoy, SiHoneypot affords sufficient time for other security systems to enact responsive measures. Experimental results underscore the minimal resources required for the deployment of SiHoneypot, emphasizing its operational efficiency and resource optimization. Moreover, the inherent extensibility and versatility of SiHoneypot's architecture are showcased, illustrating its adaptability to evolving security challenges within the dynamic landscape of autonomous vehicular technologies.