



Press Release: Launch of the Alpha Version of SEPTON's Advanced Medical Device Security Tools

FOR IMMEDIATE RELEASE

[Athens, 31.05.2024] – The SEPTON project is thrilled to announce the release of the alpha version of its groundbreaking suite of tools designed to enhance the security and privacy of networked medical devices. These tools are poised to transform the landscape of healthcare cybersecurity, ensuring patient safety and data protection in an increasingly connected world.

Anomaly Detection

Networked medical devices, such as infusion pumps, ventilators, and pacemakers, are integral to patient care. The timely detection of anomalies in these devices is critical to prevent life-threatening situations. The new anomaly detection tool developed by SEPTON identifies unusual network traffic or device behavior, potentially indicative of malware infections or cyberattacks. This tool ensures the integrity of medical devices, safeguards patient records, and helps healthcare organizations comply with regulations like HIPAA in the United States.

Differential Privacy

SEPTON's differential privacy tool is designed to protect individual privacy while enabling valuable insights from healthcare data. This technology ensures that even when an individual's data is included in a dataset, it remains indistinguishable from other data points, protecting sensitive medical information. It supports secure data sharing for medical research, clinical trials, and public health studies, while ensuring compliance with data privacy regulations such as HIPAA and GDPR.

Blockchain-Based Data Exchanges and Record Keeping

The alpha version includes a blockchain-based system for secure, decentralized management of electronic health records (EHRs). This system provides patients with control over their data, facilitates secure data exchanges between healthcare systems and devices, and enhances patient identity management. By ensuring the integrity of

medical devices and enabling secure data sharing among researchers, this blockchain solution supports collaborative medical research while maintaining patient privacy.

Homomorphic Encryption

SEPTON introduces homomorphic encryption, a cutting-edge cryptographic technique that allows computations on encrypted data. This tool is crucial for medical research and data analytics, enabling collaborative analysis without exposing raw data. It ensures secure data transmission between medical devices and other systems, supporting compliance with stringent data privacy and security regulations.

Implant Security Based on Body-Coupled Communication

The alpha release features an advanced security system for implant-based Body-Coupled Communication (BCC) devices such as pacemakers and neurostimulators. This technology ensures that communication within the human body remains secure and private. It incorporates robust encryption algorithms, cryptographic hashing for data integrity checks, and secure enclosures to prevent physical tampering.

Hardware Acceleration

SEPTON's hardware acceleration tool leverages advanced deep learning acceleration techniques deployed in modern GPUs and similar hardware to enhance the performance of anomaly detection systems. This technology allows for high-speed, low-latency processing of large datasets, essential for real-time applications such as network intrusion detection.

Vulnerability Assessment

The alpha version includes a comprehensive vulnerability assessment tool designed to identify and assess potential security weaknesses in networked medical devices. This tool utilizes automated scanning, penetration testing by ethical hackers, and risk prioritization to uncover and address vulnerabilities, ensuring compliance with regulatory requirements like the FDA's guidance for medical device cybersecurity.

About SEPTON

SEPTON is a Horizon research initiative dedicated to advancing the security and privacy of networked medical devices. By developing innovative tools and technologies, SEPTON aims to protect patient safety, enhance data security, and support compliance with global healthcare regulations.

For more information about the SEPTON project and the alpha release of our tools, please contact:

Dr. Nikos Papadakis
R&D Director SPACE Hellas, SEPTON Project Coordinator
Email: npap@space.gr

SEPTON Project: www.septon-project.eu

