Privacy-Preserving Healthcare Monitoring via Fully Homomorphic Encryption



Wearable monitors that stream biometric data to cloud platforms are becoming central to the management of chronic disease. They promise early detection, more efficient use of clinician time, and reduced hospitalization rates. However, these devices also create a privacy risk: intimate data from chronically ill patients, retained for months to years, accessible in plaintext to the cloud operator.

Niobium Microsystems offers hardware for accelerating FHE, a cryptographical scheme which allows data to stay encrypted in the cloud. In this thesis, the student will employ Niobium's Fog environment to create an FHE application capable of handling encrypted data from healthcare IoT devices (such as diabetes monitors). This will give the student experience in the rapidly growing field of encrypted computation with the very latest hardware.

More information can be found at `https://niobium.co/press`.

Practicalities

Promotor:	Ingrid Verbauwhede
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Nature of the work:	30% literature, 20% theoretical work, 50% software
Number of students:	1 or 2

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