



**The College of Graduate Studies and the College of Information Technology
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(Master Thesis Defense)**

Entitled

SDHCARE: A SECURED DISTRIBUTED HEALTHCARE SYSTEM

by

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Abstract

This thesis addresses patients' control of access to their electronic health records (EHRs) that are synchronized and exchanged between distributed healthcare providers using Blockchain Technology. The main objective of this thesis is to investigate a mechanism that enables the recovery of patients' control of access to their EHRs without compromising their privacy or identity. SDHCARE, a biometric-based system, is proposed to identify patients uniquely, enable them to control access to their EHRs, and ensure recoverable access to their EHRs. The system takes into account the security and privacy requirements of Health Insurance Portability and Accountability Act (HIPAA) compliance, and it overcomes the challenges of using secret keys to control access to EHRs, in the cases of lost secret keys and the need for emergency access to EHRs without the presence of secret keys.

Keywords: Blockchain, Healthcare, EHR, Fingerprint, Biometric, Access Control