Notice of the Final Oral Examination for the Degree of Master of Science of

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BSc (Lakehead University, 2012)

“Consent Based Privacy for eHealth Systems”

Department of Computer Science

Tuesday, August 28, 2018
9:00 A.M.
Engineering and Computer Science Building
Room 468

Supervisory Committee:
Dr. Daniela Damian, Department of Computer Science, University of Victoria (Supervisor)
Dr. Neil Ernst, Department of Computer Science, UVic (Member)

External Examiner:
Dr. Ita Richardson, Department of Computer Science, University of Limerick

Chair of Oral Examination:
Dr. Myer Horowitz, Department of Education Psychology & Leadership Studies, UVic
Abstract

Access to Personal Health Information (PHI) is a valuable part of the modern health care model. Timely access to relevant PHI assists care providers make clinical decisions and ensure that patients receive the highest quality of care. PHI is highly sensitive and unauthorized disclosure of PHI has potential to lead to social, economic, or even physical harm to the patient. Traditional electronic health (eHealth) tools are designed for the needs of care providers and are insufficient for the needs of patients.

Our research goal is to investigate the requirements of electronic health care systems which place patient health and privacy above all other concern.

Control of secure resources is a well established area of research in which many techniques such as cryptography, access control, authentication, and organizational policy can be combined to maintain the confidentiality and integrity of data. Access control is the dominant data owner facing privacy control. To better understand this domain we conducted a scoping literature review to rapidly map the key concepts underpinning patient facing access controls in eHealth systems. We present the analysis of that corpus as well as a set of identified requirements. Based on the identified requirements we developed Circle of Health based Access Control (CoHBAC), a patient centered access control model. We then performed a second scoping review to extend our research beyond just access controls, which are insufficient to provide reasonable privacy alone. The second review yielded a larger, more comprehensive, set of sixty five requirements for patient centered privacy systems. We refined CoHBAC into Privacy Centered Access Control (PCAC) to meet the needs of our second set of requirements.

Using the conceptual model of accountability that emerged from the reviewed literature we present the identified requirements organized into the Patient Centered Privacy Framework. We applied our framework to the Canadian health care context to demonstrate its applicability.