University of Victoria | Graduate Studies

Notice of the Final Oral Examination for the Degree of Doctor of Philosophy

of

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MSc (Tel Aviv University, 2013)
BSc (Tel Aviv University, 2009)

"Knowledge Building in Software Developer Communities"

Department of Computer Science

Monday, August 27, 2018
10:30 A.M.
Clearihue Building
Room B007

Supervisory Committee:
Dr. Margaret-Anne Storey, Department of Computer Science, University of Victoria (Supervisor)
Dr. Leif Singer, Department of Computer Science, UVic (Member)
Dr. Arie van Deursen, Department of Software Technology, Delft University of Technology (Outside Member)

External Examiner:
Dr. James D. Herbsleb, School of Computer Science, Carnegie Mellon University

Chair of Oral Examination:
Dr. Randy Scharien, Department of Geography, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

Software development has become a cognitive and collaborative knowledge-based endeavor where developers and organizations, faced with a variety of challenges and an increased demand for extensive knowledge support, push the boundaries of existing tools and work practices. Researchers and industry professionals have spent years studying collaborative work and communication media, however, the landscape of social media is rapidly changing. Thus, instead of trying to model the use of specific technologies and communication media, I seek to model the knowledge-building process itself. Doing so will not only allow us to understand specific tool and communication media use, but whole ecosystems of technologies and their impact on software development and knowledge work, revealing aspects not only unique to specific tools, but also aspects about the combination of technologies.

In this dissertation, I describe the empirical studies I conducted aimed to understand social and communication media use in software development and knowledge curation within developer communities. An important part of the thesis is an additional qualitative meta-synthesis of these studies. My meta-analysis has led to a model of software development as a knowledge building process, and a theoretical framework: I describe this newly formed framework and how it is grounded in empirical work, and demonstrate how my primary studies led to its creation. My conceptualization of knowledge building withing software development and the proposed framework provide the research community with the means to pursue a deeper understanding of software development and contemporary knowledge work. I believe that this framework can serve as a basis for a theory of knowledge building in software development, shedding light on knowledge flow, knowledge productivity, and knowledge management.