

# **Optimizing Software Evolution: Navigating the Landscape through Concept Location**

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## **Abstract**

In the dynamic landscape of software evolution, programmers face the critical task of modifying systems efficiently. Central to this challenge is the process of concept location, wherein developers delve into the source code to identify relevant sections for change. Without effective tools, this manual endeavor can become arduous and costly. However, the field offers promising avenues for automation through static, dynamic, and hybrid methods. In this talk, we will explore the significance of concept location in software evolution, introducing key static techniques and their applications. Through case studies, we will evaluate their effectiveness and efficiency, shedding light on practical implications. At the end, we will address current challenges and future research directions in advancing the field of concept location.

## **Biography**

Dr. Simon Xu is a Full Professor and Director in the School of Computer Science and Technology at Algoma University where he has been a faculty member since 2002. Prior to his tenure at Algoma University, he was working in the School of Computer Science of University of Windsor, Canada. Additionally, he serves as a guest professor at Wuhan University and the adjunct professor at China University of Mining and Technology, China. Dr. Xu earned his Ph.D. degrees from Wayne State University, in the United States, and the University of Liege in Belgium. His research focuses on software evolution, program comprehension, big data, and cognitive process during software development. Dr. Xu has published more than 90 articles in referred journals and conference proceedings and a few authored/co-authored books. He has chaired seven IEEE international conferences and has been invited to deliver keynotes at various IEEE conferences. He is a senior member of IEEE and a member of ACM.