先端科学技術研究科　修士論文要旨

所属研究室 (主指導教員)	ソフトウェア工学 (松本　健一　(教授))		
学籍番号	2411305	提出日	令和 7年 7月 22日
学生氏名	吉岡　春彦		
論文題目	Learning Distributed Representations of Eye Movement to Analyze Program Comprehension Process		

要旨

Program comprehension is a critical activity in software development. To understand this process, eye tracking has been used. However, conventional analysis methods often rely on predefined hypotheses, which may overlook unexpected patterns and limit exploratory analysis. This thesis proposes eye2vec, a method that automatically maps gaze data to source code elements—including words, syntax, and their relationships—and converts them into high-dimensional distributed representations, enabling exploratory analysis of eye movements. Through an experiment involving a bug detection task in Java, I demonstrate that (1) the resulting vectors can distinguish between developers based on their bug-finding performance, and (2) the proposed method can extract source code elements that are instrumental in bug detection. These results demonstrate the effectiveness of the method, which allows analysis without relying on predefined hypotheses.