



COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Defence

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Identifying Indicators of Software Maintainability Quality in Software Developed by Novice Programmers

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Chair: Dr. Xiaodong Lin

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Abstract

Software maintainability is an important but often neglected element of programming in the computer science education space. Researchers sought to determine if there was a dependence in student code submissions between code maintainability quality and the level of code adherence to written specification. Student code submissions from a single computer science course were gathered, code maintainability metrics were calculated for each submission and an auto-generated measure of code quality was assigned to each submission. A dependency was discovered between certain software maintainability metrics and the level of adherence to written software specification. This dependency was used to design the "maturity index" metric which uses a selection of maintainability metrics to estimate code quality via static analysis. This "maturity index" can be used by students in order for them to improve both the maintainability quality and the specification adherence of their code.