

Test suite minimization and hardware reduction using AI techniques (BS or MS)

Developers prefer faster feedback when testing features. It is not always easy to run all test cases on all available hardware because it is costly and takes many hours. Test suite minimization provides an optimized subset of test cases that can run in a short time and provides high level of feature/requirements coverage. Researchers have investigated different test suite minimization techniques. Our aim is to investigate if artificial intelligence techniques particularly nature-inspired techniques [1, 2] can be used to minimize test suite and hardware resources to provide faster feedback while increasing coverage. We will measure total time taken for optimized test suite, feature coverage and fault detection capability.

[1] https://books.google.se/books?hl=en&lr=&id=La_YDwAAQBAJ&oi=fnd&pg=PP1&dq=nature+inspired+optimization+algorithms&ots=OfTt5Juw8P&sig=q4pyzKfFXA2JF0W72TGIJ8LCqe4&redir_esc=y#v=onepage&q=nature%20inspired%20optimization%20algorithms&f=false

[2] <https://ieeexplore.ieee.org/abstract/document/8777692>