OPTiMA

ARC TRAINING CENTRE IN
OPTIMISATION TECHNOLOGIES
INTEGRATED METHODOLOGIES
AND APPLICATIONS

AI-BASED OPTIMISATION

AN AI-BASED OPTIMISATION APPROACH FOR FINDING AND FIXING SOFTWARE BUGS

In this talk, I will introduce an AI-based optimisation approach that automatically finds and fixes software bugs. It uses a defect predictor, which is an ML model that represents the likelihood of software elements, such as classes or methods being buggy. The predictions are employed to guide the search algorithm for finding effective test cases that reveal the bugs. Once software bugs have been automatically identified, an automated program repair technique employs a search algorithm to automatically repair the program. I will end the talk with existing research challenges and potential future directions.

Aldeida Aleti is an Associate Professor and the Associate Dean of Engagement and Impact at the Faculty of Information Technology, Monash University. Aldeida's research is in the area of search-based software engineering (SBSE), with a focus on devising AI-based optimisation approaches to automate software development tasks such as testing and program repair. Aldeida has published more than 60 papers in both optimisation and software engineering venues, and has served as PC member and organising committee at both SE and optimisation conferences, such as ASE, ICSE, GECCO, FSE, SSBSE. Aldeida has attracted more than 2.5M in competitive funding to conduct research in the areas of fairness testing of ML-based healthcare systems and for developing search based methods for testing autonomous vehicles. Aldeida was awarded a Discovery Early Career Researcher (DECRA) Award from the Australian Research Council, and she has received multiple "best paper" and "best reviewer" awards.

WED 13 OCT 4PM - 5PM AEST

ZOOM MEETING ID: 873 1557 5255; PASSWORD: 778635

OPTIMA.ORG.AU/OUTREACH-AND-EVENTS/

Australian Government
Australian Research Council

THE UNIVERSITY OF MELBOURNE

MONASH University