Genetic Improvement

COW45
25-26 January 2016
Welcome

Justyna Petke & John Woodward
20 mins walk

Sherlock Holmes Museum
Madame Tussaud’s
National Gallery
Nelson’s Column
Eros
Royal Courts of Justice
St. Paul’s
British Museum
Tate Modern
Globe Theatre
Theatre
Covent Garden Market
London Eye
House of Parliament
Westminster Abbey
Marble Arch
Centre for Research on Evolution Search and Testing (CREST) Est. 2006

1 admin
7 faculty
5 post docs
16 PhD students
1-4 resident visiting scholars
Academic Staff
Earl Barr
David Clark
Jens Krinke
Mark Harman (Head of Group)
Nicolas Gold
Paolo Tonella (Honorary)
Yue Jia

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Fan Wu
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Siti Faizah Omar
Steve Dodier-Lazaro
William Martin
Zheng Gao

http://crest.cs.ucl.ac.uk/people/

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Search Based Software Engineering

Apply search techniques to Software Engineering

Multi objective optimisation:
- cost and value
- faults, coverage, time
- metric sets
- risk and reward

Software Engineering Application areas:
- Requirements
- Testing
- Project Management
- Refactoring
- Source Code Analysis

Centre for Research in Evolution, Search &

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Testing, Testing, Testing

Web application testing
Security testing
Numeric computation testing
Regression testing
Mutation testing
Requirements based testing
Test data generation
Dependence Analysis

dependence clusters
impact analysis
program and model based slicing
assessing third party code

SLIM
SLICing state based Models

ASTReNet
Quantitative Information Flow

calculate amount of information flowing
find security leaks

Quantitative Information Flow

An EPSRC funded research project based at three sites in London:
Clone Detection

using static analysis applied to code provenance applied to graphical languages
App Store Analysis and Mining

User Rating does matter (MSR 2012)
Sampling bias issues (MSR 2015)
Feature Migration (RE 2015)
Predictive models
Android Test Data Generation System
App Developer Interview and Survey
Energy Optimisation

http://www0.cs.ucl.ac.uk/staff/FSarro/projects/UCLappA/home.html
Digital Humanities/Arts

Mapping outwards from software to systems
Software Engineering Analysis translates to
- musicology
- archaeology

PERSONAL-TOUCH
Three Repositories
SBSE Repository

This page collects the work which addresses software engineering problems using metaheuristic search optimisation techniques (i.e., Genetic Algorithms) into the Repository of Publications on Search Based Software Engineering.

- SBSE repository is maintained by Yuanyuan Zhang
- 916 relevant publications are included
- Last updated on the 25 July 2011 (Update logs)

The number of publications in the year from 1976 to 2011.

The ratio of SE research fields that involved SBSE.

The ratio of publications number in the world countries.

Who's Who

This page designed and maintained by Dr. Yuanyuan Zhang
Mutation Testing Repository

Repository News

Welcome to Mutation Testing repository

Mutation Testing is a fault-based software testing technique that has been widely studied for over three decades. The literature on mutation testing has contributed a set of approaches, tools and empirical studies. This repository aims to provide a full coverage of the publications in the literature on Mutation Testing.

Mutation Testing Survey

Using this repository, a comprehensive analysis and survey of Mutation Testing work has been conducted. The paper presents the results of several development trend analyses. These analyses provide evidence that mutation testing techniques and tools are reaching a state of maturity and applicability, while the topic of mutation testing itself is the subject of increasing interest. This paper is currently published as a technical report, available from here. If you want to cite results from the survey, here is the BibTeX entry:

ARTICLE (MUTATION TESTING REPORT)

author = Yue Jia and Mark Harman,
title = (A) (Analysis and (S)urvey of the (D)evelopment of (M)utation (T)esting),
journal = IEEE Transactions of Software Engineering,
year = 2010,
volume = (To appear),
number = 1,
pages = ()

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DAASE Programme

DAASE:
Dynamic Adaptive Automated Software Engineering
£12m project (2012-2018)
PhD studentships (3 open positions)
RA positions (1 open position)
Themes in DAASE

Genetic Improvement

PM
Predictive Modelling

TSI
Technical and Scientific Infrastructure

HHA
Hyper-Heuristics for Adaptivity
COWs

CREST Open Workshop

Roughly one per month since 2009

Discussion based

Recorded and archived
Attendance Worldwide
Attendance Worldwide

Total Registrations 1563
Unique Attendees 686
Unique Institutions 250
Countries 43
Talks 435
COWs

CREST Open Workshop
Roughly one per month

Discussion based
Recorded and archived
COWs

CREST Open Workshop
Roughly one per month

Discussion based
Recorded and archived
Today’s COW

Genetic Improvement

Mark Harman, Justyna Petke, John Woodward
Today’s COW

Tweet your comments and questions at #cow45
Thanks

Yue Jia & Matheus Paixao, COW Programme manager
Katie Bourke, Administrative arrangements
EPSRC, funding
Attendees and speakers
Domestics

Breaks

Fire or other alarm

Toilets

Wi-fi
Domestics

Breaks

Fire or other alarm

Toilets

Wi-fi

Discussions
Speakers’ dinner @ China City Restaurant 6pm
leaving from here at 5.30

Russell Square
Located at 50 Woburn Place between
Bloomsbury and Holborn. Excellent and Spacious
with a wide variety of Dim-Sum and Fusion
dining menu.
Book signing please ...
Introductions ...