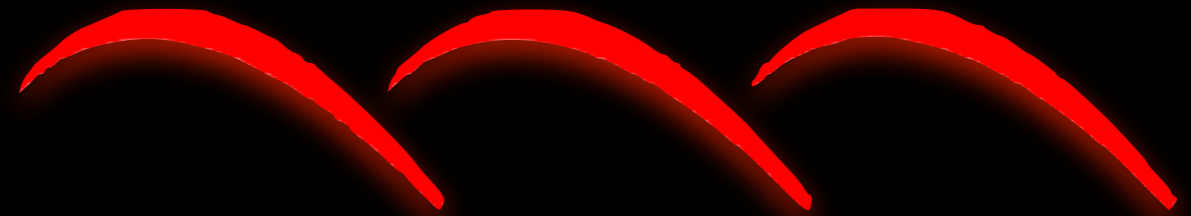


Program Analysis and Slicing

10th CREST Open Workshop

Centre for **R**esearch on **E**volution
Search and **T**esting *Est. 2006*

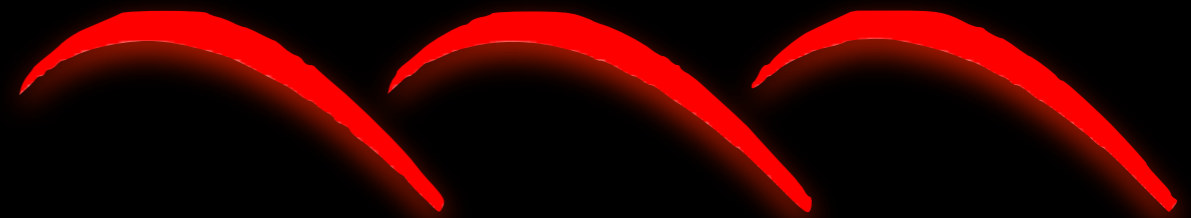
CREST



Centre for Research on Evolution Search and Testing Est. 2006

| admin

CREST

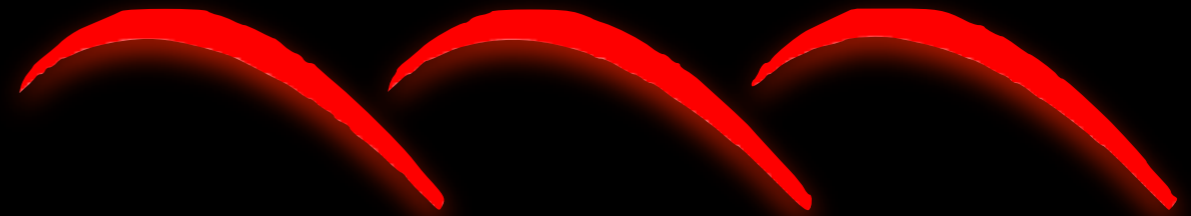


Centre for Research on Evolution Search and Testing Est. 2006

1 admin

4 faculty

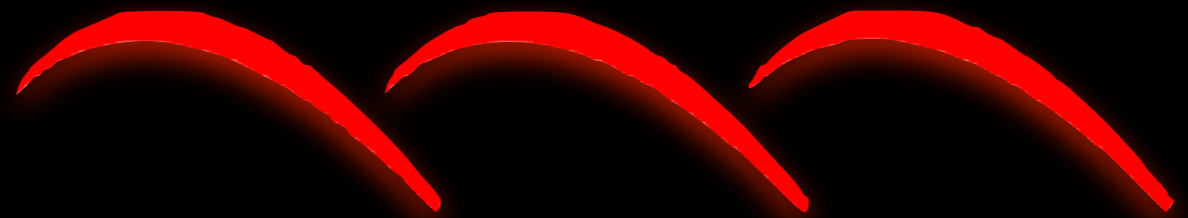
CREST



Centre for Research on Evolution Search and Testing Est. 2006

- 1 admin
- 4 faculty
- 8 post docs

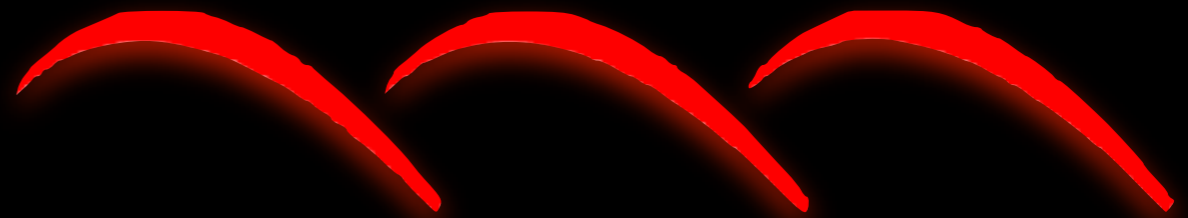
CREST



Centre for Research on Evolution Search and Testing Est. 2006

- 1 admin
- 4 faculty
- 8 post docs
- 11 PhD students

CREST



Centre for Research on Evolution Search and Testing Est. 2006

1 admin

4 faculty

8 post docs

11 PhD students

1-4 resident visiting scholars

CREST



Research

Research

Service Oriented Computing

Search Based Software Engineering

Clone Detection

Dependence Analysis

Quantitative Information Flow

Digital Humanities

Testing

Requirement Engineering

Funding







Mark Harman
Slicing COW10



Monday, 31 January 2011



Mark Harman
Slicing COW10



Monday, 31 January 2011



 **UCL**

20 mins walk



Mark H. ...
...ing COW10

 UCL

 Sherlock Holmes Museum
 Madame Tussaud's
 UCL

20 mins walk

 Marble Arch

 Eros

 British Museum

 Covent Garden Market


 Royal Courts of Justice


 St. Paul's

 National Gallery

 Nelson's Column

 Tate Modern

 Globe Theatre

 Westminster Abbey

 House of Parliament
London Eye

 UCL

Mark H...man
...ing COW10

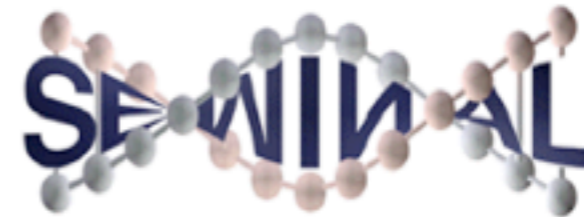
Monday, 31 January 2011

Search Based Software Engineering

Apply **search techniques** to Software Engineering

Multi objective optimisation:

- cost and value
- faults, coverage, time
- metric sets
- risk and reward



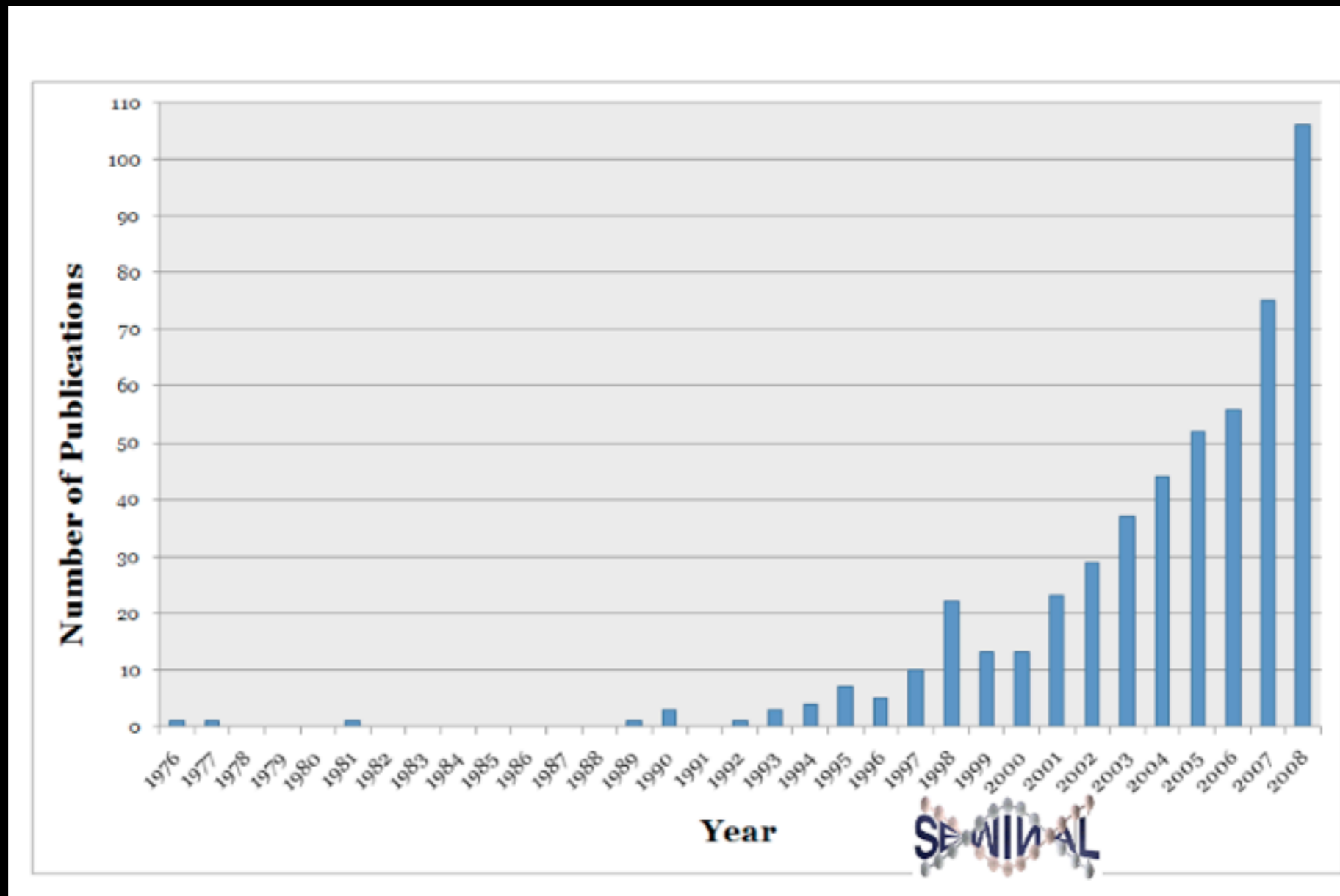
Centre for Research in
Evolution, Search &

Software Engineering Application areas:

- Requirements
- Testing
- Project Management
- Refactoring
- Source Code Analysis



Search Based Software Engineering



Testing, Testing, Testing

Testing, Testing, Testing

Mutation testing

Model based testing

Automated test data generation

Web application testing

Service oriented testing

Fuzz testing

Security testing

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

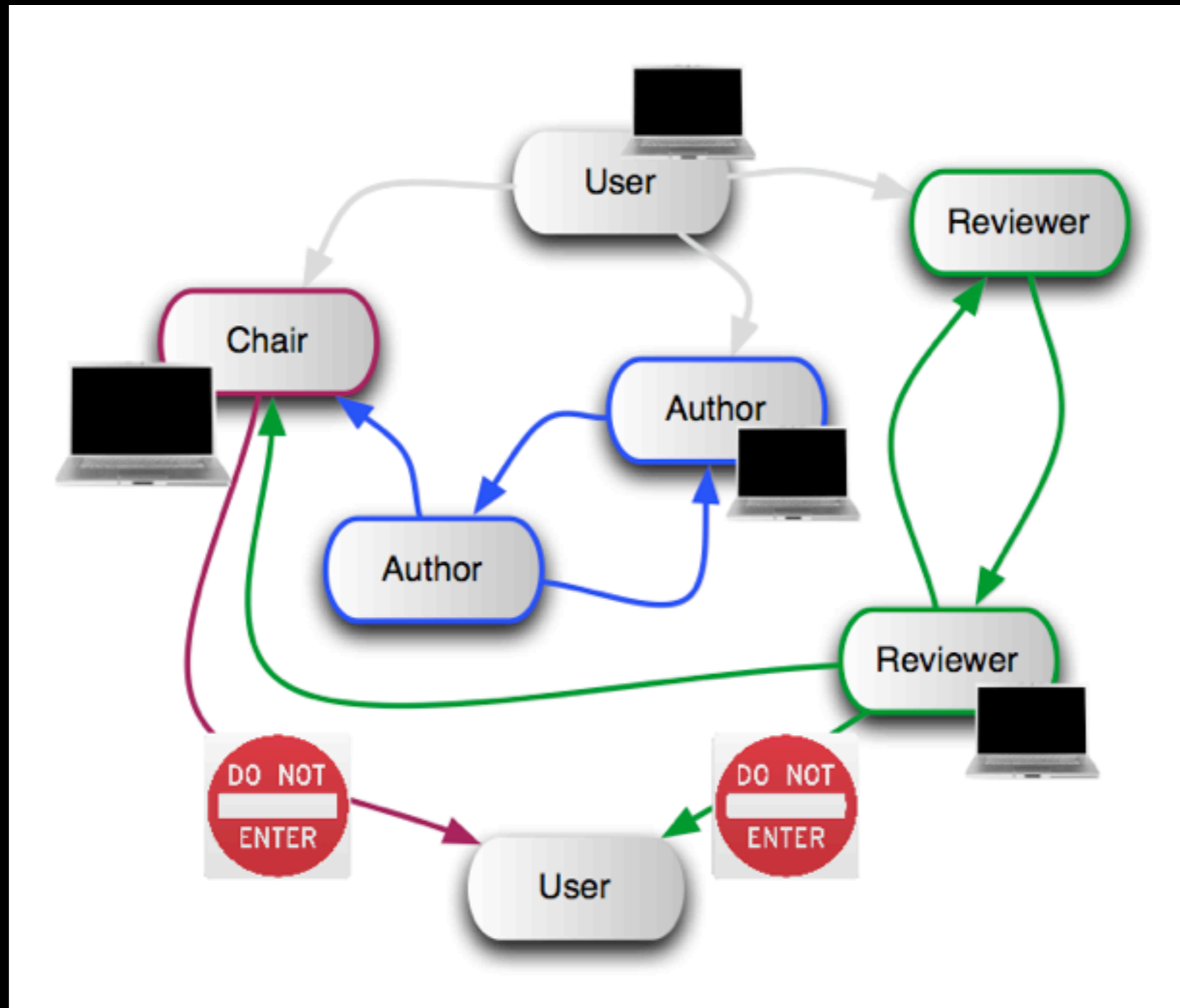
find security leaks

Quantitative Information Flow

An [EPSRC](#) funded research project based at three sites in London:

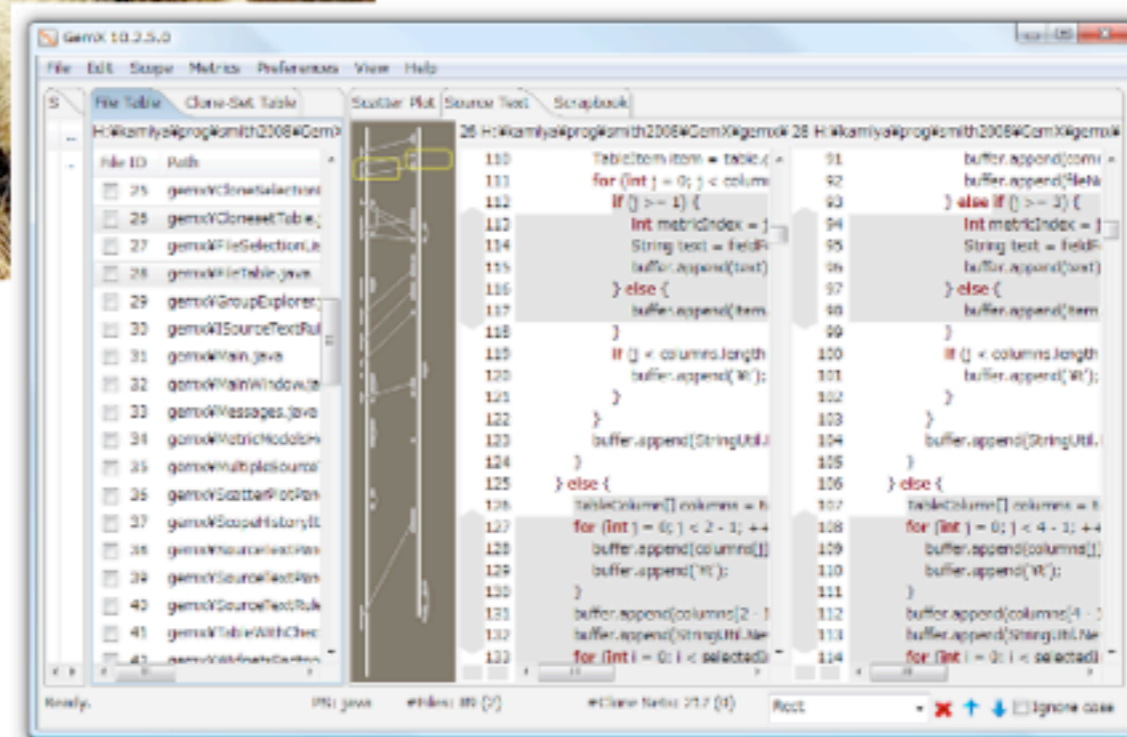


Information Flow Control



Clone Detection

using static analysis
applied to code provenance
applied to graphical languages



Digital Humanities

Mapping outwards from software to systems

Software Engineering Analysis translates to

- musicology
- archaeology



PERSONAL-TOUCH

SBSE Repository

SEBASE Software Engineering By Automated SEArch

Project Community

Publications | Applications | Collaborators | Who's who


REPOSITORY


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


SBSE

- SBSE repository is maintained by **Yuanyuan Zhang**
- 616 relevant publications are included
- Last updated on the 1 December 2009 ([Update logs](#))

enter

 The number of publications in the year from 1976 to 2009.

 The ratio of SE research fields that involved SBSE.

 The ratio of publications number in the world countries.

GP Bibliography



bibliography

The Genetic Programming Bibliography

[[Search It](#) | [Most recent](#) | [Top 10 Cited](#) | [Most Downloaded](#) | [Add to It](#)]

The bibliography is part of the [Collection of Computer Science Bibliographies](#).
It is maintained and managed by [William Langdon](#), [Steven Gustafson](#), and [John Koza](#).



[Add single entries](#) or email [William Langdon](#) or firstname DOT lastname AT-SYMBOL research DOT ge DOT com
a bibtex file containing the entries.

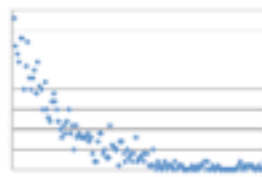
Bibtex file

[gp-bibliography.bib \(Compressed\)](#) Over 6000 GP references

Other formats

[refer format \(Compressed\)](#)

[text file \(Compressed\)](#)



[Author](#) format (split by first author)



[co authorship graphs](#)

Search Interfaces

The GP bibliography is one of the many online computer science bibliographies

There are several on line search tools for these bibliographies. For example:

o [WWW form](#) based search

o The [coauthor graphs](#) can also be used for searching by author name.

o You can find all entries for an author using a URL like this one: <http://www.cs.bham.ac.uk/~wbl/biblio/gp-html/WilliamBLangdon.html>

Naturally you must replace **WilliamBLangdon.html** by the author's name.

Other Resources

o [Bibliographies of evolutionary computation conferences](#).

o [Hints](#) on using bibliographies with PC based word processing packages

o [Links](#) to other information on bibliographies.

o [Subdirectory](#) containing some [tools](#) and [templates](#) for maintaining bibliographies.

o [Links](#) to other bibliographies.

o [Home pages](#) of some GP researchers

Mutation Testing Repository

HOME REPOSITORY THEORY TECHNIQUES ANALYSIS Search Publications

PUBLICATION EMPIRICAL STUDY TOOL

Mutation Testing Repository

Publications on Mutation Testing

Mutation Testing remains an active research area with growing interest... [READ MORE](#)

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{Jia10,  
  author = {Yue Jia and Mark Harman},  
  title = {(A)n (A)nalysis and (S)urvey of the (D)evelopment of (M)utation (T)esting},  
  journal = {IEEE Transactions on Software Engineering},  
  year = {2010},  
  volume = {To appear},  
  number = {},  
  pages = {}  
}
```

Quick Search

Search for paper author

[View all papers](#) | [authors](#)

Repository Status

Last update:	16/06/10
Number of Papers:	415
Number of Authors:	298

[Detailed status ...](#)

Missing Paper?

Email:

Title:

 | [email us](#)

Links

- [.: Mutation Testing Online](#)
- [.: Mutation Testing Wiki](#)

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COWs

CREST Open Workshop

Typically last week of the month

Aim for last Wednesday (where rooms available)

Discussion based

Recorded and archived

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Previous COWs

Previous COWs

Nov 2009 35 attendees: Search Based Software Engineering

Dec 2009 21 attendees: Software Testing

Jan 2010: 34 attendees: Using Static Analysis for Fault Prediction

Feb 2010: 31 attendees: Operational Research for Software Engineering Methods

Mar 2010: 26 attendees: Information Theory for Search Based software Engineering

Apr 2010: 24 attendees: Dependence Analysis and Slicing for Programs and Models

May 2010: 24 attendees: Information Flow and Security

Oct 2010: 34 attendees: Mootation testing

Nov 2010: 36 attendees: Code Provenance and Clone Detection

COWs

9th CREST Open Workshop

Code Provenance and Clone Detection

Date: Tue 23 Nov, 2010

Venue: Lethaby Room, Mary Ward House

10th CREST Open Workshop

Program Analysis and Slicing

Date: 24 - 25 Jan, 2011

Venue: William Goodenough Room, Goodenough Club

11th CREST Open Workshop

SBSE for Early Lifecycle Software Engineering: Requirements and Management

Date: Wed 23 Feb, 2011

Venue: Engineering Front Executive Suite, Roberts Building

COWs

9th CREST Open Workshop **36 people attended**

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11th CREST Open Workshop 20 already registered

SBSE for Early Lifecycle Software Engineering: Requirements and Management

Date: Wed 23 Feb, 2011

Venue: Engineering Front Executive Suite, Roberts Building

Thanks

Jian Ren, COW Programme manager

Lena Hierl, Administrative arrangements

Yue Jia, visitor liaison

EPSRC, funding

Attendees and speakers

Thanks

Jian Ren, COW Programme manager

Lena Hierl, Administrative arrangements

Yue Jia, visitor liaison

EPSRC, funding

Attendees and speakers

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Jian Ren, COW Programme manager

Lena Hierl, Administrative arrangements

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Attendees and speakers

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Jian Ren, COW Programme manager

Lena Hierl, Administrative arrangements

Yue Jia, visitor liaison

EPSRC, funding

Attendees and speakers

Domestics

Fire or other alarm

Toilets

Discussions

Domestics

Fire or other alarm

Toilets

Discussions

Introductions ...