Centre for Research in
Evolution, Search & Testing

Welcome to CREST

CREST Open Workshop

Using Static Analysis for Fault Prediction

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Evolution, Search & Testing

KING'S College LONDON

CREST is home to

- 4 faculty
- 1 administrative officer
- 8 post docs
- 12 PhD students
- 1 to 4 long term visitors

Search Based Software Engineering - SBSE

Apply search techniques to search large search spaces, guided by a fitness function that captures properties of the acceptable software artefacts we seek.

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

SEBASE

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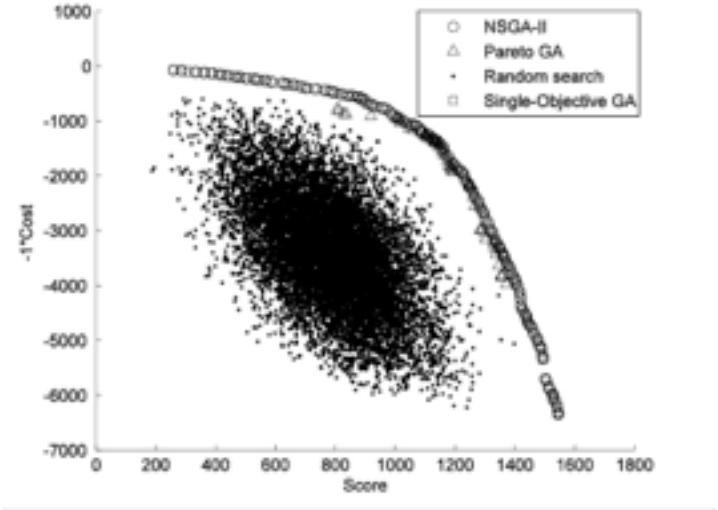
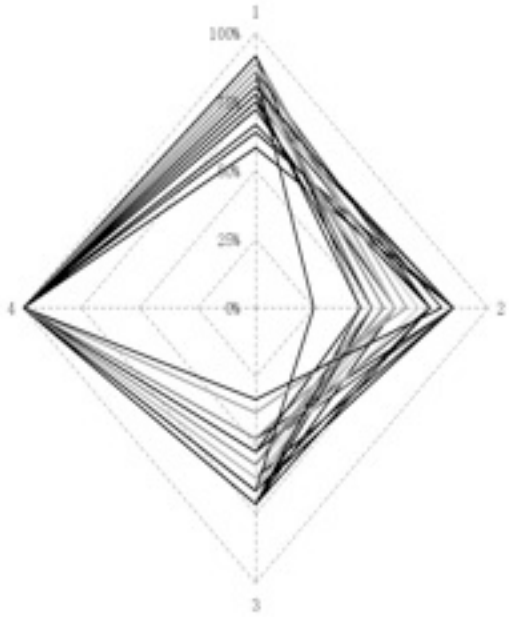
SBSE - Requirements Optimisation



Cost/Value trade off



Tensions between customers

Testing

All kinds of testing:-

- Mutation testing
- Model based testing
- Automated test data generation
- Web application testing
- Service oriented testing
- Fuzz testing
- Security testing
- Regression testing

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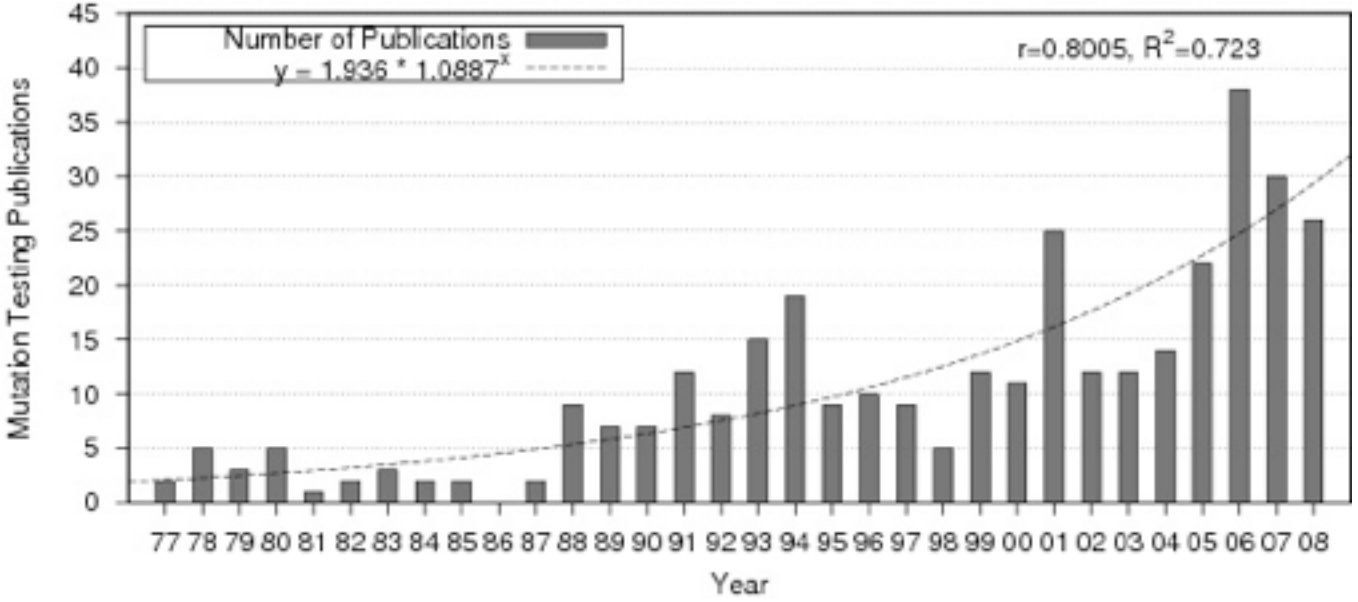
Mutation Testing

Inject faults to measure the test suite's quality



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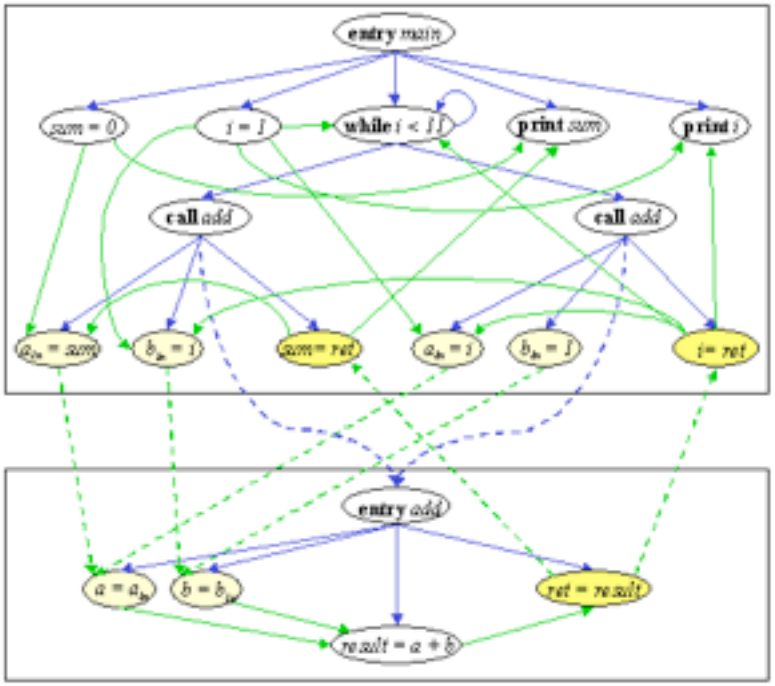
Dependence Analysis

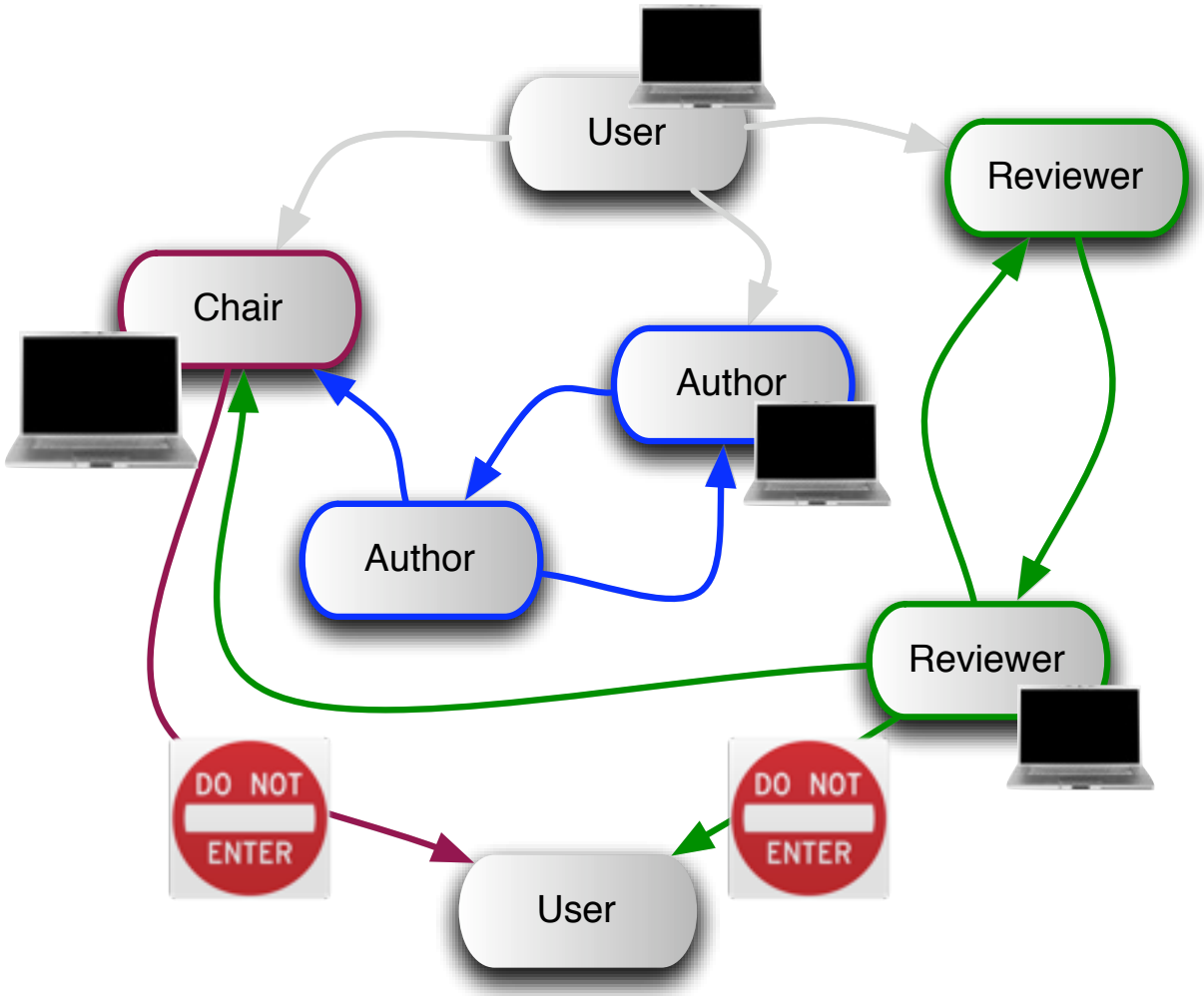
dependence clusters
impact analysis
program and model based slicing
assessing third party code



Quantitative Information Flow

calculate amount of information flowing
find security leaks

Information Flow Control



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Service Oriented Computing

Testing services with services
Optimising performance
Finding dependence

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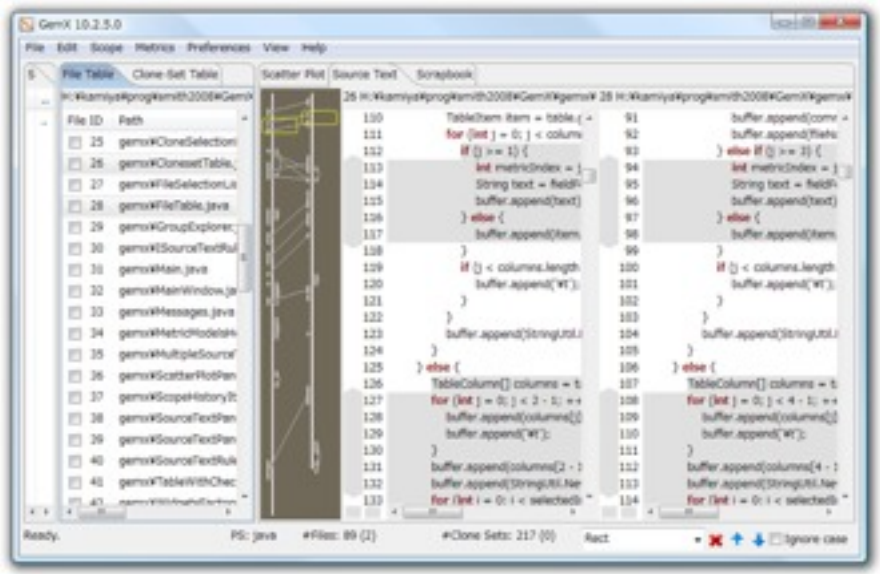
Clone detection

using static analysis
applied to code provenance
applied to graphical languages



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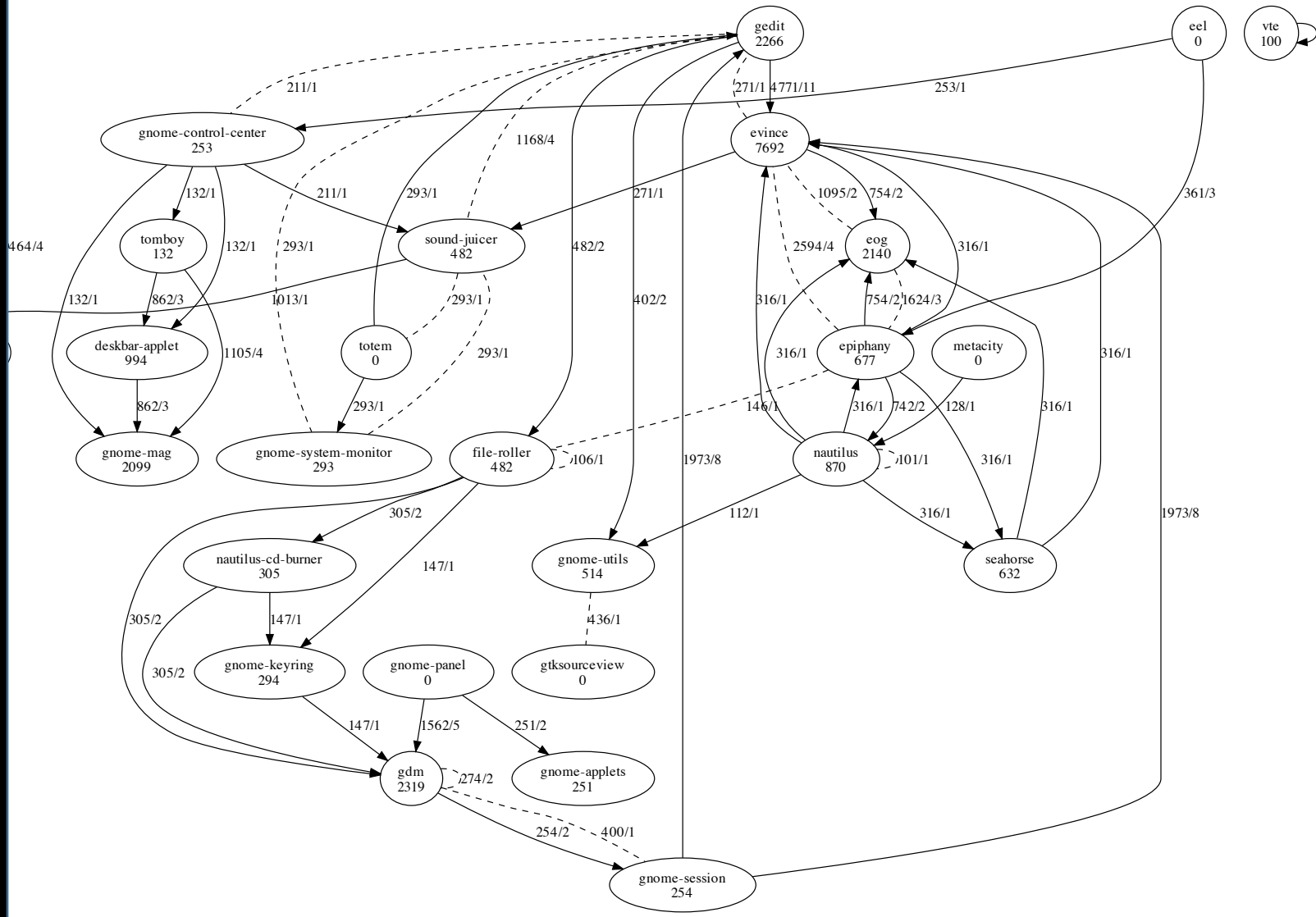
Clone detection - Code Provenance



http://crest.dcs.kcl.ac.uk/

Digital Humanities

Mapping outwards from software to systems

Software Engineering Analysis translates to

- musicology
- archaeology

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CREST Open Workshops

Regular Workshops
Every last Wednesday of the month
Talks and Lots of discussion
Recording of talks NOT discussion

4th CREST Open Workshop
Operational Research for Software Engineering Method
Friday, 26 February

http://crest.dcs.kcl.ac.uk/cow/

3rd CREST Open Workshop

Thanks

- Jian for organisation
- EPSRC for funding

Logistics

- fire alarms
- toilets

Introductions ...