Project ViViz – Final Presentation

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CMSC 734, Fall 2009

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Project Sponsors

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Agenda

• Review of software testing – ViViz and GUITAR
• Live Demo of ViViz version 1.x
• User feedback and results of usability tests
• Conclusions and future work
ViViz in 2 minutes

• ViViz is a visualization toolkit for GUITAR:
  – A GUI software testing system.
  – ViViz displays the various testing outputs of GUITAR.

• Main features of ViViz:
  1. Visualizes the GUI structure and Event Flow Graphs (EFG) using network diagrams.
  2. Highly interactive interface for user to gain deeper insights into GUITAR’s testing output.
     • Overview first, zoom and filter, details on demand.
  3. Innovative multiple layouts of the same data reveals faults and bugs in the GUI.
The Big Picture

Application

Reverse Engineering → Testing Model Creation → Test Case Generation → Test Case Prioritization → Test Case Execution

GUI Model

Event Flow Graph

Test Pool

Model Enrichment

Test Case Enrichment

Visualization Analysis

Continuous Feedback

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Research Contributions

1. A new *methodology* for GUI testing data analysis based on visualization.
2. Visualization *techniques* for GUI testing analysis
3. A new *tool* for visualize the UI structure
ViViz Demo Scenario

• CL, a Philosophy major conjecture that *all software with GUI have bugs*. He wants a tool to refute his hypothesis – show that it is *bug-free*.

• Bao, a Comp Science major introduces CL to his latest and greatest innovation: **ViViz** that can reveal faults in software

• The two meet up in a café for an interesting demo...
ViViz – Demo and Feedback

• Demo session of ViViz for the class of CMSC 737 on Dec 3, 2009
  – User feedback obtained, volunteers for **usability tests**.

• Pilot study conducted

• Usability study
  – Six volunteered; Four turned up
  – Six tasks
  – Brief interview and feedback session
  – Questionnaire

• Prof. Atif Memon: "I am impressed with the ViViz potential as a tool to complement GUITAR".
Results

• All users felt the need of ViViz is useful
• 66% of the tasks were performed within the expected time
  – All users had some difficulty with the meta-edge threshold coverage option
• All the users had minor/major suggestions for improvement
  – Feasible minor suggestions were incorporated and was verified by the subjects who proposed them
  – Inclusion of the property pane was one such addition
ViViz is online!

• Official and beta releases at http://viviz.sourceforge.net
• Website contains links and information on
  – GUITAR and software testing
  – Archived documents of ViViz progress
  – Testimonies and feedback of users
  – Video demo of using ViViz
  – Latest news and releases
Conclusions

• The potential to support GUITAR in software testing using visualization is made clear in ViViz.

• Future releases of ViViz will include:
  – Enhanced user interface: searching, filtering and color selection, new layouts etc.
  – Scalability for larger and more complex GUI
  – Integration with GUITAR as a complete package

• Future publication planned for the ACM SoftVis conference www.softvis.org
Thank you!

Questions and comments,
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