Visualizing and Exploring Program Traces

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Today’s Menu

Software Visualization: Why, What, How, Who

Our Systems (with lots of pictures)

Future Work
Software Understanding

Help with answering questions about a software system

• Questions about the development process
• Questions about the concepts (algorithms)
• Questions about the execution
Development Process

Data Source: RCS, SCCS, CVS

Implementation: SeeSoft

Visualizing and Exploring Program Traces
Algorithm Animation

Data Source: Specific Programs or Probes in Programs

Implementations: Sorting Out Sorting, Balsa
Execution Visualization

Data Source: Tracing

Implementation: PV

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Future Work
Our Systems

Execution Visualizations

- Field
- Desert (Cacti, Mirage, Valley)
- Almost
Visualizing Moments

Visualizing and Exploring Program Traces
Visualizing Sequences

Visualizing and Exploring Program Traces
Larger Examples

Visualizing and Exploring Program Traces
Even Larger Examples

Visualizing and Exploring Program Traces
Memory

Visualizing and Exploring Program Traces
Other Aspects

Visualizing and Exploring Program Traces
Profiling

Visualizing and Exploring Program Traces
Execution Summaries

Visualizing and Exploring Program Traces
Explorations I: Cacti

Visualizing and Exploring Program Traces
Explorations II: Almost Visualizing and Exploring Program Traces
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Future Work
Future Work

- Better View Linking
- Selective Tracing
- Art-Inspired Visualizations
- AI techniques for Summarizing