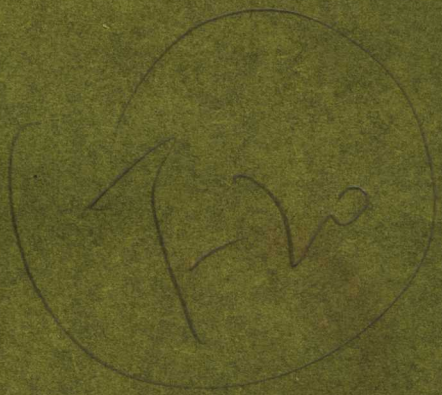
Fourth International Workshop On Computer-Aided Software Engineering



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CASE '90

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CASE '89 Results

MAINTENANCE AND REVERSE ENGINEERING

- GOALS
- APPROACHES
- DEFINITIONS
- OPEN ISSUES
- RESEARCH PROJECTS
- RESEARCH NEEDED

- CHANGE FROM 1988: RECOGNITION

  BUZZWORD STATUS AND HYPE

  MORE PEOPLE DOING MORE THINGS

GOALS

* Deal with complexity
* Deal with volume
* Lost information
  * Migrate to some other representation (better?)
* Provide a level of understanding
* Having the information available
* Moving to a higher-level abstraction
* Detect re-use candidates

APPROACHES USED FOR REVERSE ENGINEERING

1. Code Scanning
2. Analysis of Program Structures
3. Reshaping Structure
4. Analysis of Data Strauctur̃e
5. Sys/Command Level Scanning e.g. make files
6. Domain Analysis
7. Design Recovery
8. Data Name Standardization
9. Language Translators
10. Program Optimization
11. Abstraction of Design
12. Abstraction of Data
13. Identification of Reusable Portions
14. Identification of Misused Items
15. Presentation/Other Forms of Representation

DEFINITIONS

REVERSE - Process of extracting/abstracting design artifacts
Process of building abstractions which are less implementation dependent
-> information gained

RE-ENGINEERING - Process of recasting s/w to another form
Modification
-> results in executable product

RE-STRUCTURING - Altering of code for improved str.

REUSE - 1 - ID stable components that can be re-used
2 - MECH. that support re-use

"SOFTWARE PERESTROIKA"

RE-DOCUMENTATION

ISSUES

* Abstraction/Summarization without domain knowledge
* Cross-level abstraction vs. utility at same level
* "Most vendors appear not to be doing process re-engineering"
* Likely not to be a fully automated process
* What to capture/analyze?
* Nature of R.E. process? -Methodology
* The code has lost most real-world requirements information
* Conceptual understanding of code/psychology process
* Inclusion of concepts from run-time measurement; simulation
* "Legal Definition"
* Understandability of re-structured code