



# Constraint-Based Design Recovery for Software Reengineering : Theory and Experiments /

Woods, Steven G.

Springer US,  
1998

Electronic books

Monografía

The great challenge of reverse engineering is recovering design information from legacy code: the 'concept recovery' problem. This monograph describes up-to-date research dealing with this problem. It discusses a theory of how a constraint-based approach to program plan recognition can efficiently extract design concepts from source code, and it details experiments in concept recovery that support the authors' claims of scalability. Constraint-Based Design Recovery for Software Reengineering: Theory and Experiments presents models and experiments in sufficient detail so that they can be easily replicated. This book is intended for researchers or software developers concerned with reverse engineering or reengineering legacy systems. However, it may also interest those researchers who are interested in using plan recognition techniques or constraint-based reasoning. The reader is expected to have a reasonable computer science background (i.e., familiarity with the basics of programming and algorithm analysis), but is not required to have a familiarity with the fields of reverse engineering or artificial intelligence (AI). This book is designed as a reference for advanced undergraduate or graduate seminar courses in software engineering, reverse engineering, or reengineering. It can also serve as a supplementary textbook for software engineering-related courses, such as those on program understanding or design recovery, for AI-related courses, such as those on plan recognition or constraint satisfaction, and for courses that cover both topics, such as those on AI applications to software engineering

<https://rebiunoda.pro.baratznet.cloud:28443/OpacDiscovery/public/catalog/detail/b2FpOmNlbGVicmF0aW9uOmVzLmJhemF0ei5yZW4vMjE1NjAzNDA>

**Título:** Constraint-Based Design Recovery for Software Reengineering Theory and Experiments by Steven G. Woods, Alexander E. Quilici, Qiang Yang

**Editorial:** Boston, MA Springer US 1998

**Descripción física:** 1 online resource (xxii, 189 pages)

**Mención de serie:** The Springer International Series in Software Engineering 1384-6469 3

**Contenido:** 1. Introduction -- 1.1 Program Understanding -- 1.2 The State of The Practice -- 1.3 Conceptual Program Understanding -- 1.4 The Remainder of This Book -- 2. Plan-Based Program Understanding -- 2.1 Overview -- 2.2 Ast-Based Approaches -- 2.3 Graph-Based Approaches -- 2.4 Analysis of Previous Approaches -- 3. Program Understanding and Constraint Satisfaction -- 3.1 Introduction -- 3.2 Constraint Satisfaction Problems -- 3.3 Program Understanding as Constraint-Satisfaction -- 3.4 Modeling Existing Program Understanding Algorithms -- 4. Initial Experiments with Concept Recovery -- 4.1 Introduction -- 4.2 Experimental Framework -- 4.3 Experiments With Csp Solvers -- 4.4 Comparing Existing Approaches -- 4.5 Summary of Results -- 5. Additional Experiments with Concept Recovery -- 5.1 Introduction -- 5.2 Experimental Framework -- 5.3 Some Experiments With Real Programs -- 5.4 Experiments with Domain-Value Pre-Filtering -- 5.5 Experiments With A New Constraint-Based Algorithm -- 5.6 Summary -- 6. Program Understanding and AI Plan Recognition -- 6.1 Introduction -- 6.2 An Ai Approach to Plan Recognition -- 6.3 Problems with Applying AI Plan Recognition -- 6.4 Layered Map-CSP Versus the AI Approach -- 7. Improving our Constraint-Based Approach -- 7.1 Introduction -- 7.2 Addressing Problems with Layered Map-Csp -- 7.3 Integrated Understanding: PU-CSP -- 7.4 Solving Strategies for PU-CSP -- 7.5 PU-CSP Versus Layered MAP-CSP -- 8. Conclusions -- 8.1 Summary -- 8.2 Future Experiments -- 8.3 Future Modeling and Algorithm Development -- 8.4 Future Tool Development -- 8.5 Applying Plan Recognition to the Year 2000 Problem -- 8.6 Contributions to Artificial Intelligence -- 8.7 Final Remarks -- References

**Copyright/Depósito Legal:** 935295756 968501764

**ISBN:** 9781461554615 electronic bk.) 1461554616 electronic bk.) 9781461374947 1461374944

**Materia:** Computer science Software engineering Artificial intelligence Artificial intelligence. Computer science. Software engineering.

**Autores:** Quilici, Alexander E. Yang, Qiang

**Enlace a formato físico adicional:** Print version 9781461374947

**Punto acceso adicional serie-Título:** Springer International Series in Software Engineering 3

---

## **Baratz Innovación Documental**

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- [informa@baratz.es](mailto:informa@baratz.es)