

# (Automated) Refactoring - A Taxonomy

## Seminar in Software Engineering

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# Refactoring

- Restructuring code without change in semantics
  - Importance in software evolution is obvious
  - Tool support is important
- Topics:
  - Performance impact of refactoring
  - Modernizing code
  - Automated refactoring

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# Maintainability versus Performance: What's the Effect of Introducing Polymorphism?

Serge Demeyer (2002)

- Case Study Paper
- Comparison of the performance of two programmes
  - one which contains large conditionals
  - one where the conditionals are implemented using polymorphism

# Restructuring Legacy C Code into C++

Richard Fanta, Václav Rajlich (1999)

- Case study on Mosaic browser code
- Combination of refactorings to create classes
  - From C structs
  - From related variables

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# Co-evolution of Object-Oriented Software Design and Implementation

Theo D'Hondt, Kris De Volder, Kim Mens, Roel Wuyts (2002)

- Experiments that use logic meta-programming (LMP)
  - LMP = an instance of hybrid language symbiosis merging a declarative (logic) meta-level language with a standard object-oriented base language
- Codify design information as
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  - a process for code generation

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# Automated Refactoring using Design Differencing

Iman Moghadam, Mel Ó Cinnéide (2012)

- Novel refactoring approach that refactors a program based on
  - desired design
  - source code
- Using desired design as target, based on
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# The Spartanizer: Massive Automatic Refactoring

Yossi Gil, Matteo Orrù (2017)

- Tool demo paper
- Eclipse plugin for automatic refactoring to make code more compact
- Shows that automatic refactoring can be used effectively

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# Slicing Object-Oriented Software

Loren Larsen, Mary Jean Harrold (1996)

Mostly unrelated to our topic → canned

# Papers



Demeyer

Maintainability versus Performance: What's the Effect of Introducing Polymorphism?

*Technical Report, Lab. on Reengineering, Universiteit Antwerpe, 2002*



Fanta, Rajlich

Restructuring Legacy C Code into C++

*IEEE International Conference on Software Maintenance (ICSM), 1999*



D'Hondt, De Volder, Mens, Wuyts

Co-evolution of Object-Oriented Software Design and Implementation

*Software Architectures and Component Technology, 2002*

# Papers



Moghadam, Ó Cinnéide

Automated Refactoring using Design Differencing

*16th European Conference on Software Maintenance and Reengineering (CSMR), 2012*



Gil, Orrù

The Spartanizer: Massive Automatic Refactoring

*24th International Conference on Software Analysis, Evolution and Reengineering (SANER), 2017*



Larsen, Harrold

Slicing Object-Oriented Software

*18th International Conference on Software Engineering (ICSE), 1996*