More C++ GEMS

edited by
Robert C. Martin
## CONTENTS

**FOREWORD** .......................... IX  
**ACKNOWLEDGMENTS** ................ XI  
**INTRODUCTION** ..................... XIII

### DIAMONDS FROM DEEP IN THE PAST

**Finite State Machines: A Model of Behavior for C++**  
- Immo Húneke ........................................... 3

**Abstract Classes and Pure Virtual Functions**  
- Robert C. Martin ................................. 15

**Memory Management and Smart Pointers**  
- Cay S. Horstmann ................................. 33

**Pointers vs. References**  
- Stan Lippman ....................................... 51

**Much Ado about Null**  
- Dr. James M. Coggins .......................... 65

**Setting the Stage**  
- James O. Coplien ................................. 73

**Perspectives from the “Gang of Four”**  
- John Vlissides .................................... 85

### PRESENT DAY INDUSTRIAL DIAMONDS

**The Open-Closed Principle**  
- Robert C. Martin ................................. 97

**Large-Scale C++ Software Design**  
- John Lakos ......................................... 113

**Taskmaster: An Architecture Pattern for GUI Applications**  
- Robert C. Martin, James W. Newkirk, and Bhama Rao 201

**Monostate Classes: The Power of One**  
- Steve Ball and John Crawford ............... 223
Applying the ABC Metric to C, C++, and Java • Jerry Fitzpatrick 245

Patterns for Mapping OO Applications to Relational Databases • Alberto Antenangeli 265

Designing Exception-Safe Generic Containers • Herb Sutter 277

The Anatomy of the Assignment Operator • Richard Gillam 305

Thread-Specific Storage for C/C++ • Douglas C. Schmidt, Nat Pryce, and Timothy H. Harrison 337

Making the World Safe for Exceptions • Matthew H. Austern 373

What's in a Class? • Herb Sutter 393

Pimples—Beauty Marks You Can Depend On • Herb Sutter 407

External Polymorphism • Chris Cleeland and Douglas C. Schmidt 417

A Technique for Safe Deletion with Object Locking • Jeff Grossman 449

GPERF: A Perfect Hash Function Generator • Douglas C. Schmidt 461

Uses and Abuses of Inheritance • Herb Sutter 493

Review: The BOOSE Programming Language • Herb Sutter 511

Index 515