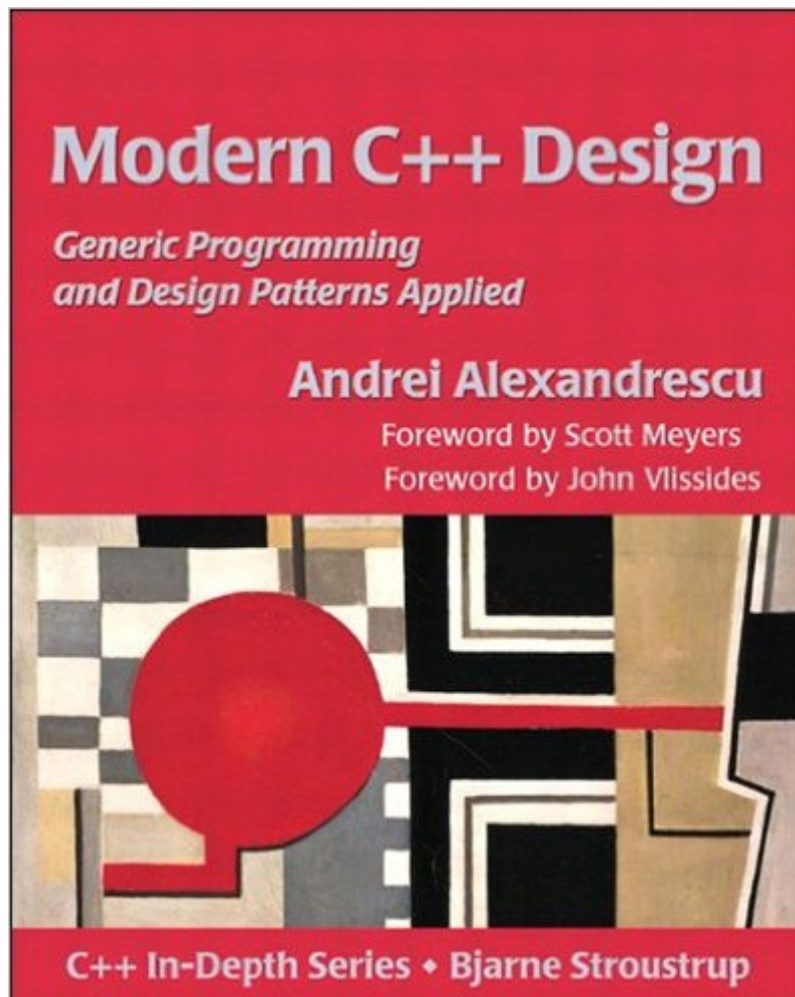# Modern C++ Design: Generic Programming And Design Patterns Applied (C++ In-Depth Series)

Synopsis

Modern C++ Design, Andrei Alexandrescu opens new vistas for C++ programmers. Displaying extraordinary creativity and programming virtuosity, Alexandrescu offers a cutting-edge approach to design that unites design patterns, generic programming, and C++, enabling programmers to achieve expressive, flexible, and highly reusable code. Â This book introduces the concept of generic componentsâ "reusable design templates that produce boilerplate code for compiler consumptionâ "all within C++. Generic components enable an easier and more seamless transition from design to application code, generate code that better expresses the original design intention, and support the reuse of design structures with minimal recoding. Â The author describes the specific C++ techniques and features that are used in building generic components and goes on to implement industrial strength generic components for real-world applications. Recurring issues that C++ developers face in their day-to-day activity are discussed in depth and implemented in a generic way. These include: Policy-based design for flexibility Partial template specialization Typelistsâ "powerful type manipulation structures Patterns such as Visitor, Singleton, Command, and Factories Multi-method engines For each generic component, the book presents the fundamental problems and design options, and finally implements a generic solution. Â In addition, an accompanying Web site, http://www.awl.com/cseng/titles/0-201-70431-5, makes the code implementations available for the generic components in the book and provides a free, downloadable C++ library, called Loki, created by the author. Loki provides out-of-the-box functionality for virtually any C++ project. Â   Get a value-added service! Try out all the examples from this book at www.codesaw.com. CodeSaw is a free online learning tool that allows you to experiment with live code from your book right in your browser.

Book Information

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Customer Reviews

Read this book and you may feel you've fallen down the hole into some sort of C++ Alice-in-Wonderland:"Isn't it nifty just how much you can do with functions... that not only don't do anything but don't even really exist at all?" p.36The title is a bit presumptuous; a more accurate title would be "Template Metaprogramming Stunts", since this book is primarily about tricks you can play with C++'s template mechanism.The author does also make a go at proposing a new concept of "policy-based class design" -- by which he means using templates intead of multiple inheritance to create combinatorial mixtures of behavior. This is interesting, but seems hard to apply beyond the cliches he considers (ex: smart pointers), so his argument reads like a well-intended but parochial graduate thesis, with dutiful gestures of respect to his mentors (ex: Scot Myers) and limited range of real-world application.The real meat of the book is his template techniques, which are ingenious -- if perverse, when seen from the standpoint of someone else trying to read and extend your code, or diagnose its arcane compiler errors. If you've ever had to work with other people on software, you may find his glib view of compiler errors disappointing. In many cases he relies on compiler errors to signal something more complex and semantic than the mere error would suggest. (If you're programmed much C++ you've surely experienced 10-line long STL template errors with a very simple underlying cause that is hard to discern from the error message. Learning to suss out what these mean is much of the sweat-work of learning C++.) I think this is simply that he's coming from the perspective that the interworkings of the language and the compiler are fascinating, and worth being a primary focus of study.

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