Professional C++

Marc Gregoire

PROFESSIONAL C++

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Dedicated to my wonderful parents and my brother, who are always there for me. Their support and patience helped me in finishing this book.

ABOUT THE AUTHOR

MARC GREGOIRE is a software architect from Belgium. He graduated from the University of Leuven, Belgium, with a degree in "Burgerlijk ingenieur in de computer wetenschappen" (equivalent to a master of science in engineering in computer science). The year after, he received an advanced master's degree in artificial intelligence, *cum laude*, at the same university. After his studies, Marc started working for a software consultancy company called Ordina Belgium. As a consultant, he worked for Siemens and Nokia Siemens Networks on critical 2G and 3G software running on Solaris for telecom operators. This required working in international teams stretching from South America and the United States to Europe, the Middle East, Africa, and Asia. Now, Marc is a software architect at Nikon Metrology (`nikonmetrology.com`), a division of Nikon and a leading provider of precision optical instruments, X-ray machines, and metrology solutions for X-ray, CT, and 3-D geometric inspection.

His main expertise is C/C++, specifically Microsoft VC++ and the MFC framework. He has experience in developing C++ programs running 24/7 on Windows and Linux platforms: for example, KNX/EIB home automation software. In addition to C/C++, Marc also likes C#.

Since April 2007, he has received the annual Microsoft MVP (Most Valuable Professional) award for his Visual C++ expertise.

Marc is the founder of the Belgian C++ Users Group (`becpp.org`), co-author of *C++ Standard Library Quick Reference* 1st and 2nd editions (Apress), a technical editor for numerous books for several publishers, and a regular speaker at the CppCon C++ conference. He maintains a blog at `www.nuonsoft.com/blog/` and is passionate about traveling and gastronomic restaurants.

ABOUT THE TECHNICAL EDITORS

PETER VAN WEERT is a Belgian software engineer whose main interests and expertise are application software development, programming languages, algorithms, and data structures.

He received his master of science degree in computer science *summa cum laude* with congratulations from the Board of Examiners from the University of Leuven. In 2010, he completed his PhD thesis on the design and efficient compilation of rule-based programming languages at the research group for declarative programming languages and artificial intelligence. During his doctoral studies he was a teaching assistant for object-oriented programming (Java), software analysis and design, and declarative programming.

Peter then joined Nikon Metrology, where he worked on large-scale, industrial application software in the area of 3-D laser scanning and point cloud inspection for over six years. Today, Peter is senior C++ engineer and Scrum team leader at Medicim, the R&D unit for digital dentistry software of Envista Holdings. At Medicim, he codevelops a suite of applications for dental professionals, capable of capturing patient data from a wide range of hardware, with advanced diagnostic functionality and support for implant planning and prosthetic design.

Common themes in his professional career include advanced desktop application development, mastering and refactoring of code bases of millions of lines of C++ code, high-performant, real-time processing of 3-D data, concurrency, algorithms and data structures, interfacing with cutting-edge hardware, and leading agile development teams.

Peter is a regular speaker at, and board member of, the Belgian C++ Users Group. He also co-authored two books: *C++ Standard Library Quick Reference* and *Beginning C++* (5th edition), both published by Apress.

OCKERT J. DU PREEZ is a self-taught developer who started learning programming in the days of QBasic. He has written hundreds of developer articles over the years detailing his programming quests and adventures. His articles can be found on CodeGuru (`codeguru.com`), Developer.com (`developer.com`), DevX (`devx.com`), and Database Journal (`databasejournal.com`). Software development is his second love, just after his wife and child.

He knows a broad spectrum of development languages including C++, C#, VB.NET, JavaScript, and HTML. He has written the books *Visual Studio 2019 In-Depth* (BpB Publications) and *JavaScript for Gurus* (BpB Publications).

He was a Microsoft Most Valuable Professional for .NET (2008–2017).

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Of course, the support and patience of my parents and my brother were very important in finishing this book. I would also like to express my sincere gratitude to my employer, Nikon Metrology, for supporting me during this project.

Finally, I thank you, the reader, for trying this approach to professional C++ software development.

—Marc Gregoire

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