

# Peter Pirkelbauer

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## Education

**PhD in Computer Science** with emphasis on Programming Languages and Tools, Texas A&M University, College Station, TX, expected Spring 2010.

**MBA** with emphasis on Finance at Texas A&M University, College Station, TX, May 2003.

**Dipl.-Ing. in Computer Science** with emphasis on Software Engineering and System Programming at Johannes - Kepler Universität, Linz, Austria - July 1997.

**Erasmus Exchange Student** at the Universidad de Murcia, Murcia, Spain, Fall 1995 - Spring 1996.

## Peer Reviewed Publications

Peter Pirkelbauer, Damian Dechev, Bjarne Stroustrup: *Source Code Rejuvenation is not Refactoring*. In 36th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM), 2010. Lecture Notes in Computer Science (LNCS). Springer, to appear.

Peter Pirkelbauer, Yuriy Solodkyy, Bjarne Stroustrup: *Design and Evaluation of C++ Open Multi-Methods*. In Science of Computer Programming, 2009. Elsevier Journal. to appear.

Peter Pirkelbauer, Sean Parent, Mat Marcus, Bjarne Stroustrup: *Dynamic Algorithm Selection for Runtime Concepts*. In Science of Computer Programming, 2009. Elsevier Journal. to appear.

Damian Dechev, Peter Pirkelbauer, Nicolas Rouquette, Bjarne Stroustrup: *Semantically Enhanced Containers for Concurrent Real-Time Systems*. In Proceedings of 16th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (IEEE ECBS), April 2009.

Damian Dechev, Nicolas Rouquette, Peter Pirkelbauer, Bjarne Stroustrup: *Verification and Semantic Parallelization of Goal-Driven Autonomous Software*. In Proceedings of 2nd International Conference on Autonomic Computing and Communication Systems (ACM Autonomics), 2008, Turin, Italy. (acceptance rate = 30%)

Peter Pirkelbauer, Sean Parent, Mat Marcus, Bjarne Stroustrup: *Runtime Concepts for the C++ Standard Template Library*. In Proceedings of the 2008 ACM symposium on Applied computing (SAC), 2008. ACM Press. (acceptance rate = ~30%)

Peter Pirkelbauer, Yuriy Solodkyy, Bjarne Stroustrup: *Open Multi-Methods for C++*. In proceedings of the 6th International Conference on Generative Programming and Component Engineering (GPCE), 2007. ACM Press. (acceptance rate = 31%)

Damian Dechev, Peter Pirkelbauer, Bjarne Stroustrup: *Lock-free Dynamically Resizable Arrays*. In Proceedings of 10th International Conference on Principles of Distributed Systems (OPODIS), 2006, LNCS 4305, Springer 2006. (acceptance rate = 12%)

Markus Hof, Hanspeter Mössenböck, Peter Pirkelbauer: *Zero-Overhead Exception Handling Using Metainformation*. 24th Seminar on Current Trends in Theory and Practice of Informatics, SOFSEM '97, LNCS 1338, Springer 1997.

## Invited Talk, Book Chapter, Technical Report, and Workshop

Damian Dechev, Nicolas Rouquette, Peter Pirkelbauer, Bjarne Stroustrup: *Programming and Validation Techniques for Reliable Goal-driven Autonomic Software*. Book Chapter in *Autonomic Communication*. Vasilakos, A.; Parashar, M.; Karnouskos, S.; Pedrycz, W. (Eds.), ISBN: 978-0-387-09752-7, Springer, May 2009.

Peter Pirkelbauer, Yuriy Solodkyy, Bjarne Stroustrup: *Report on language support for Multi-Methods and Open-Methods for C++*. TR N2216, ISO WG21, March 2007.

*The Pivot - a source-to-source framework for getting more elegant and efficient code*. Invited Talk. ISCR - Lawrence Livermore National Lab, August 2006.

*The Pivot Framework: Design and Implementation*. Workshop on Domain Specific Languages. Argonne National Lab, August 2004.

Peter Pirkelbauer, Markus Hof, Hanspeter Mössenböck: *Zero-Overhead Exception Handling Using Meta-information* TR CS-SSW-P97-07, Johannes Kepler University Linz, Austria, September 1997.

## Work Experience

**Research Assistant** in the Parasol Lab, Group for Programming Languages, Techniques, and Tools, Texas A&M University, July 2003 - present.

- Conversion of the intermediate program representation of the EDG frontend into IPR, the high level intermediate representation of C++ programs in The Pivot framework.
- Developed a lock-free dynamically resizable array.
- Designed and implemented open multi-methods for C++.

**Software Engineer** (Internship) in the Photoshop Team, Adobe Systems, Summer 2006. Worked on a programming model that unifies the benefits of the generic programming and object oriented programming paradigm.

**Research Assistant** (Internship), Lawrence Livermore National Labs, Summer 2005. Developed an interface between Rose (LLNL) and The Pivot (Texas A&M), two compiler frameworks supporting analysis and transformations of C++ programs.

**Software Engineer** for a TQM - project, VA Stahl Linz GmbH, Austria, Oct 1998 - Aug 2001.

Tasks included all phases of software development from system analysis, system design, implementation, maintenance to subproject supervision and end user training.

- Designed and implemented a domain specific language (DSL) that prescinds from the direct use of a database query language (SQL). The DSL allows to model and modify client, plant, and process specific business rules during runtime. A DSL specific programming environment provides visual code blocks to further ease writing rules. The whole system reduces the amount of manhours that professional programmers spend on defining and maintaining business logic.
- Developed a Material Defect Catalog to supply the data capture level with predefined context sensitive input. This electronic information system replaced the existing paper catalog.
- Designed and implemented an on-line surface assistant comparing graded material defects against client specific defect tolerances in order to support human material inspectors in real-time.

- Designed and supervised the implementation of a workflow-component that controls the maintenance process (i.e.: versioning, submission, approval) of master data (e.g.: check lists, rules).

**Social Worker** in an elderly home, BAH Leonding, Austria, Oct 1997 - Sep 1998.

**System Programmer** (Internship), ModulaWare, La Chanenche, France, Summer 1997.  
Migration of the OpenVMS AlphaOberon integrated development and runtime environment to support the 64bit memory management abilities provided by the OpenVMS system.

**Tutor**, Johannes - Kepler Universität, Linz, Austria, Fall 1993 - Spring 1995, Spring 1997.  
Tutor for computer-programming courses including Introduction into Programming and Algorithms.

## Other Skills

**Spoken Languages:** German, English, Spanish.

**Programming Languages:** C++, C, Haskell, Java, Oberon-2, PL/SQL.

**Operating Systems:** Windows, Linux (Ubuntu, CentOS), OpenVMS.