

## Dietmar Ebner

Christian Doppler Laboratory “*Compilation Techniques for Embedded Processors*”  
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I am a Research Assistant at the Christian Doppler Laboratory “Compilation Techniques for Embedded Processors”. My research is focused on combinatorial optimizations for hard problems, in particular using dynamic programming, local search techniques, and integer linear programming. Current projects are on retargetable compiler backends, instruction selection techniques, and integrated code generation problems for superscalar and VLIW architectures.

### Employment History

Research Assistant since 10/05  
Vienna University of Technology Vienna, Austria  
Research on retargetable compilers and automatic parallelization for superscalar and VLIW architectures. Funded by ONDEMAND Microelectronics and the “Christian Doppler Foundation”.

Research Internship 03/05 – 09/05  
Mitsubishi Electric Research Laboratories Cambridge, MA  
Research on efficient approximation algorithms for elevator scheduling problems. Co-author of two patents as a result of the research stay.

Research Assistant 03/04 – 09/04  
University of La Laguna Tenerife, Spain  
Institute for “*Estadística, Investigación Operativa y Computación*”  
Research on exact algorithms for the crossing minimization problem based on integer linear programming (master thesis).

C++ Developer 04/99 – 10/03  
Alldata EDV-Systeme Vienna, Austria  
Design and implementation of business software and intranet applications for an Austrian online bank (C++, Active Server Pages, Tuxedo, MS SQL Server, Oracle).

### Education

Vienna University of Technology since 10/99  
Student of Computer Science  
Personal emphasis on efficient algorithms and datastructures, compiler optimizations, and internet security. Graduated with honors (03/2005). Since 10/2005 enrolled in the PhD-program.

## Publications

Dietmar Ebner, Florian Brandner, Bernhard Scholz, Andreas Krall, Peter Wiedermann, and Albrecht Kadlec

*Generalized Instruction Selection using SSA-Graphs*

In Proc. of LCTES08 (International Conference on Languages, Compilers, and Tools for Embedded Systems, Tucson, AZ)

Florian Brandner, Dietmar Ebner, and Andreas Krall

*Compiler Generation from Structural Architecture Descriptions*

In Proc. of CASES07 (International Conference on Compilers, Architecture, and Synthesis for Embedded Systems, Salzburg, Austria)

Dietmar Ebner, Florian Brandner, and Andreas Krall

*Leveraging Predicated Execution for Multimedia Processing*

In Proc. of ESTIMEDIA07 (5th International Workshop on Embedded Systems for Real-Time Multimedia, Salzburg, Austria)

Christoph Buchheim, Markus Chimani, Dietmar Ebner, Carsten Gutwenger, Michael Jünger, Gunnar W. Klau, Petra Mutzel, and René Weiskircher

*A Branch-and-Cut Approach to the Crossing Number Problem*

Journal on Discrete Optimization, Special Issue in memory of George B. Dantzig

Florian Brandner, Dietmar Ebner, Andreas Krall, Christian Thalinger

*Static Verification of Global Heap References in Java Native Libraries*

In SPACE06 (Third Workshop on Semantics, Program Analysis, and Computing Environments for Memory Management, Charleston, South Carolina)

Christoph Buchheim, Dietmar Ebner, Michael Jünger, Gunnar W. Klau, Petra Mutzel, and René Weiskircher

*Exact Crossing Minimization*

In Proc. of GD 2005 (13th International Symposium on Graph Drawing, Limerick, Ireland)

Roberto Tamassia, Editor

*Handbook of Graph Drawing and Visualization*, To Appear

Chapter “*Crossings and Planarization*”

Christoph Buchheim, Dietmar Ebner, Carsten Gutwenger, Michael Jünger, and Petra Mutzel

Dietmar Ebner

*Optimal Crossing Minimization using Integer Linear Programming*

Masters Thesis, 2005, Vienna University of Technology

Dietmar Ebner, Gunnar W. Klau, and René Weiskircher

*Label Number Maximization in the Slider Model*

In Proc. of GD 2004 (12th International Symposium on Graph Drawing, New York, U.S.A.)

## Teaching

VU2 185.324 *Compilation Techniques for VLIW Architectures*

Dietmar Ebner and Florian Brandner

Vienna University of Technology, SS08

## References

*Prof. Dr. Jens Knoop*

Head of the Computer Languages Group, Vienna University of Technology

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*Prof. Dr. Andreas Krall*

Computer Languages Group, Vienna University of Technology

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*Prof. Dr. Bernhard Scholz*

School of Information Technologies, University of Sydney

Building J12, NSW 2006, Australia

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*Matthew Brand, Ph.D.*

Senior Research Scientist, Mitsubishi Electric Research Laboratories

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## Summer Schools

Fourth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES'08), L'Aquila, Italy, July 2008

Second International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems (ACACES'06), L'Aquila, Italy, July 2006

## Languages

German (first language)

English (fluent)

Spanish (intermediate)

## Tools

**Compiler Frameworks:** LLVM, gcc, binutils

**Languages:** C, C++, Java, Haskell, Unix shell (perl, awk, ...)

**Operating Systems:** Linux, BSD, Mac OS X, Windows, Solaris

**Libraries:** STL, boost, MFC, J2EE, LEDA, ILOG concert, Tuxedo

**Architectures:** ARM, X86(\_64), PowerPC, MIPS, Itanium