

I do *not* build bridges ...



... my know-how, my experience,  
my personality and my dedication  
connect worlds.

— Hannes Eder

# Hannes Eder

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## Interest

database systems, compilers and mathematics.

## Education

02/2009–present PhD Student / TU Vienna  
03/2005–02/2009 MS Computational Intelligence / TU Vienna  
*with distinction*  
10/2004–06/2005 Technical Mathematics / TU Vienna  
10/2001–02/2005 BS Software and Information Engineering / TU Vienna  
*with distinction*  
09/1990–06/1995 HTBLA Salzburg, Department for Electronics and Informatics  
*with distinction*

## Experience

**CS Student, TU Vienna** *October 2001–present*

- **PhD Student, TU Vienna** *February 2009–present*
- **Graduand at Database and Artificial Intelligence Group, TU Vienna** *March 2007–February 2009*
  - The topic of my thesis is “On Extending PostgreSQL with the Skyline Operator”<sup>1</sup>.
  - Student helper at VLDB 2007.
  - External referee for EDBT 2008 and VLDB 2008.
- **Tutor for Compiler Construction, TU Vienna** *March–June 2004, 2005, 2006, 2007, and 2008*
  - Assisted students to develop compilers from a more or less toy language to optimized Alpha assembler and AMD64 assembler (starting in 2008). During these courses compilers for functional, data-flow and structured languages were developed. Tools like flex, bison, Ox (attributed grammar) and iburg (tree parser generator) were extensively used.
- **Intern, Space Department / KFKI Research Insitute for Particle and Nuclear Physics / Hungary** *July–August 2004*
  - Enhanced the memory dump viewer (part of the debugger) for the Rosetta lander test and emulation system (7k lines LabView C code).
  - Developed a TCP/IP based communication protocol for the units of the emulation system (5k lines C++ code).
- **Intern (Bachelor Thesis), T-Mobile Austria** *July–August 2003*

ArcView GIS Plugin: “Voronoi Diagrams for Planning mobile Networks” (4k lines C++ and 2k lines VB code). This software is still used by T-Mobile and has been integrated into other systems.

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<sup>1</sup>test drive at: <http://skyline.dbai.tuwien.ac.at/>

- **Tutor for Object Oriented Programming, TU Vienna** *October 2003–January 2004, October 2004–January 2005*

- Discussed, reviewed and helped to improve the Java code of ten teams, three students each.

- **projects just for fun**

- solver for sudokus and related puzzles (<1k lines Mathematica code)
- applet for PM logic trainer puzzle (1k lines Java code)
- solver for PM logicals (1k lines C code)
- a compiler from HE/0 (my own pascal like toy language) to Java byte code (4k lines Java code)
- and many more including assignments for university using languages of various paradigms

### **Freelance Software Engineer** *September 2000–present*

- **Database for Austrian National Heritage Organisation (Bundesdenkmalamt)**

*September 2000–present*

- I started the project in 1996 as an employee of IAM Consultant Group. The insolvency of the company stopped the development in 1997 until I took over the project in 2000.
- Today this database is a  $\approx 2$ GB SQL Server database and  $\approx 150$ GB of image data and still growing. The codebase is 45k lines VB, 20k lines TSQL, 20k lines C++ code and the youngest application with 60k lines C# code.
- The youngest application is iMago, a tool for tagging and archiving images, which uses a DAG for the tag structure of the images.

### **Software Engineer, Black System Technologie GmbH** *September 1997–August 2000*

- **Austrian Car Registration System** *January 1998–August 2000*

I worked mainly on the client software, I wrote  $\approx 20\%$  of the C++ code in the first place and later on maintained the entire client code. The client was cross platform Windows and OS/2. The server was OS/400 with 3000 concurrent users. I co-designed the communication protocol on top of MQSeries. During the first year I headed one of the developer teams with five members. Ported Unix compress tool to OS/400, to be used for data distribution. Codebase 130k lines C++ code and 140k lines ILE RPG.

- Some other projects and tasks at Black System were:

- Consulting clients in host and OS/400 integration.
- Building a gateway for data exchange between a SINIX (Siemens Unix) system and an IBM S/390 using MQSeries and SNA (2k lines C++ code).
- Held courses on Windows and Lotus Notes software development for IBM Learning Services.
- Built various Notes databases to support the development process.
- Responsible for SCM.

## Software Engineer, IAM Consultant Group GmbH *July 1995–August 1997*

- **Database for Austrian National Heritage Organisation** *see section Freelance Software Engineer*
- **Distributed POI (Point of Information) for tourism**  
Developed a distributed POI system with touch screen, printer and telephone integration. A MS Access database was used as datastore. Since at that time Access did not support replication, I developed our own publisher/subscriber mechanism. Updates were automatically distributed via modem during the night. I built a computer telephony (CT) solution, to allow our clients to update status information via telephone. Codebase 30k lines VB, 3k lines C++ code.
- **“Katmandu” (a CRM system)**  
Developed an address database, with CRM features and integrated office document management. It allows distributed and mobile usage. This software is still sold under a different name today. Codebase 25k VB code.

## Selected Publications

Hannes Eder. *On Extending PostgreSQL with the Skyline Operator*. Master’s thesis, Vienna University of Technology, 2009.

Hannes Eder. *Voronoi Diagrams for Planning mobile Networks*. Bachelor’s thesis, Vienna University of Technology, 2003.

## Honors and Awards

Elected for TUtheTop 2007 (*the high potential program of TU Vienna*)<sup>2</sup>.

“Pluskurs für Ordnung und Chaos” (chaos theory) – participated in the advancement program for highly gifted of the federal country Salzburg / Austria.

## Certificates

Microsoft Certified Professional for Internetworking with Microsoft TCP/IP on Microsoft Windows NT 4.0

## References

Prof. Dr. Reinhard Pichler *+43 (1) 58801-18422* and Dr. Fang Wei *+43 (1) 58801-18433* (Thesis Advisor)  
Dr. Andreas Lehne *+43 (1) 53415-226* (Bundesdenkmalamt)  
Gottfried Heider *+43 (676) 6795019* (PM Car Registration System)

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<sup>2</sup>see <http://tuthetop.tucareer.com/>