Matthias Springer

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Profile

I am a computer science graduate student, interested in programming languages, virtual machines, execution environments, program transformation and optimization, compilers, web development, algorithm design and database query processing.

Personal Information

Born 28 July 1990, Freising, Germany.
Nationality German.
Languages German (native speaker), English (CEFR C1/C2, TOEFL iBT score 117/120).

Education

Sept. 2014 - Aug. 2015 **Hasso Plattner Institute, University of Potsdam**, *Potsdam, Germany*,
Master of Science, IT Systems Engineering
Relevant coursework: VMs and Execution Environments, Context-oriented Programming.

Sept. 2013 - June 2014 **University of California, San Diego**, *La Jolla, CA, USA*,
Visiting student, Computer Science and Engineering, GPA: 4.0
Relevant coursework: Advanced Compilers (CSE 131/231), Programming Languages (CSE 130/230), Advanced Algorithms (CSE 190/202/203A), Database Analytics (CSE 190).

Aug. 2010 - July 2013 **Hasso Plattner Institute, University of Potsdam**, *Potsdam, Germany*,
Bachlor of Science, IT Systems Engineering,
Overall grade: 1.0 (GPA 4.0), rank 1-4/74,
Bachelor's project: Evolving Applications: Object-Migration with Ruby and GemStone
Bachelor's thesis: Inter-Language Collaboration in an Object-Oriented Virtual Machine
Project and thesis supervised by Prof. Dr. Robert Hirschfeld, Tim Felgentreff, Tobias Pape.
Relevant coursework: Software Architecture, Software Engineering I, Advanced Modularity, Database Systems I/II, Internet and WWW Technologies, Designing Interactive Systems (HCI).

Sept. 2000 - June 2009 **Josef-Hofmiller-Gymnasium**, *Freising, Germany*,
University entrance qualification (Abitur),
Overall grade: 1.7, rank 4/82.

German grading system: 1.0 is best possible, 4.0 is worst possible, 5.0 is failed.
Selected coursework and papers: `http://m-sp.org/`.

Research Experience

March 2014 - Nov. 2014 **Independent Study**, *UCSD*,
Research with Prof. Papakonstantinou and Chunbin Lin,
Implemented and evaluated algorithms and data structures for context-sensitive queries in relational database systems, and compared them against latest column store techniques, using C++ and FastBit.

May 2012 - Apr. 2013 **Student Research Assistant**, *Hasso Plattner Institute*,
Chair Internet Technologies and Systems (Prof. Dr. Meinel),
Integrated the SOA Security Lab in an existing cloud-based VM network (OpenNebula) for executing and evaluating SOA security scenarios. Enhanced the tele-lab user interface, a system for teaching and practising network security scenarios.

May 2011 - Dec. 2011 **Student Research Assistant**, *Hasso Plattner Institute*,
Chair Internet Technologies and Systems (Prof. Dr. Meinel),
Integrated the JavaScript-based Oryx Editor in the SOA Security Lab for modelling SOA security scenarios graphically. Developed a Grails backend for storing SOA security scenarios.

Teaching Experience

Summer 2012, Summer 2013 **Mathematics II**, *Dr. Börner*, Teaching Assistant.

Summer 2013 **Software Engineering I**, *Prof. Dr. Hirschfeld*, Tutor.

Winter 2012/13, Winter 2014/15 **Software Architecture**, *Prof. Dr. Hirschfeld*, Tutor.

Work Experience

June 2014 - Sept. 2014 **Google Inc.**, *Boulder, CO, USA*, Software Engineering Intern,
Working on a business event process engine for an internal Google payments system, using Megastore, F1/Spanner, Java, and Guice.

Aug. 2012 - Oct. 2012 **Senacor Technologies AG**, *Munich, Germany*, Intern,
Developed software components and tests for a service-oriented environment in the financial sector, using Java EE, the Spring Framework, and Oracle database servers.

Aug. 2011 - Oct. 2011 **TNG Technology Consulting GmbH**, *Munich, Germany*, Intern,
Developed plugins for Atlassian JIRA/Confluence (Subversion commit monitor) and Hudson/Jenkins (job status monitor). Set up an LDAP server for user authentification for SSH and Atlassian JIRA/Confluence.

July 2005 **Rechenzentrum Garching (RZG) of the Max Planck Society**, *Munich, Germany*, Intern.

Projects

Oct. 2014 - July 2015 **ME310 Global Team-based Product Innovation & Engineering**,
course offered by Hasso Plattner Institute and Stanford University,
Working on a design challenge by Audi USA with Stanford mechanical engineering students. Developing and prototyping concepts for the car of the future, using design thinking methodologies.

June 2013 - Sept. 2013 **Google Summer of Code 2013**, *European Smalltalk User Group (ESUG)*,
Implemented the Athens vector graphics library in Amber Smalltalk, a Smalltalk execution environment running entirely in the web browser, using HTML5 Canvas. Developed a Morphic-like framework for building user interfaces on top of Athens.
Project mentors: Nicolas Petton, Igor Stasenko.

Dec. 2012 - June 2013 **MagLev Database Explorer**,
An IDE running entirely in a web browser for exploring Ruby/Smalltalk objects persisted in a GemStone/S 64 image, writing Ruby/Smalltalk code, and debugging Rails/Sinatra applications interactively. Built with Amber Smalltalk, Ruby on Rails, and Twitter Bootstrap.

All of my projects can be found on my Github page.

Achievements

Sept. 2014 - July 2015 **Hasso Plattner Medal**,
One-year scholarship awared to the best students of the year.

Sept. 2013 - May 2014 **DAAD (German Academic Exchange Service) Jahresstipendium**,
Scholarship to study at a North American university.

2010/2011 **informatiCup 2011**, *organized by the Gesellschaft für Informatik*, Bonn, Germany,
Participated in first round and in final round (6/38 teams invited). Wrote optimization algorithms for placing ATMs on a map, using Simulated Annealing, Tabu Search and greedy algorithm techniques.

2009/2010 **German federal competition in computer science**, *University of Freiburg*,
First prize in first and second round, invited to final round (30/1039 students invited).

2008/2009 **German federal competition in computer science**,
Second prize in first and second round.

2007/2008 **German federal competition in computer science**,
Max Planck Institute for Computer Science, Saarbrücken,
First prize in first and second round, invited to final round (30/about 1100 students invited).

Papers, evaluation and certificate: `http://cv.m-sp.org/`

Skills

Programming Android (A), C (C), C# .NET (A), Groovy (A), Haskell (B), Java EE (A), Java SE (C), LLVM (A), NumPy (A), Prolog (A), Python (B), Ruby (MRI, MagLev) (B), OCaml (A), Smalltalk (Amber, GemStone, Pharo, Seaside, Squeak) (C), SQL (B), Visual Basic (VB 6, VBA) (A).

Software Engineering Design Patterns (B), Extreme Programming (A), BDD (A), Git (B), Jenkins (A), Scrum (A), Subversion (A), TDD (A), UML (B).

Server OS Debian/Linux Server (B), Windows Server (A).

Web CSS (A), Grails (B), HTML (A), JavaScript (A), jQuery (A), Ruby on Rails (A).

A: level 1/basic, B: level 2/experienced, C: level 3/expert

Further Education

MTA 98-364 Database Administration Fundamentals.

MTA 98-365 Windows Server Administration Fundamentals.

MCTS 72-511 Windows Applications Development with Microsoft .NET Framework 4.

MCTS 72-680 Windows 7, Configuring.

Digital verification: `https://mcp.microsoft.com/authenticate/validatemcp.aspx`,
Transcript ID: `963416` and `963421`, Access Code: `62478569`

Hobbies and Interests

Memberships ACM, Gesellschaft für Informatik e.V. (GI), Deutsche Physikalische Gesellschaft e.V. (DPG), and Bundeswettbewerb Informatik Alumni und Freunde e.V..

Music Playing trumpet and flugelhorn.

Sports Speedminton, swimming.

Date: October 20, 2014