

# Matthias Springer

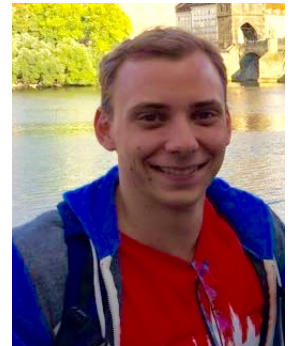
## *School address*

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Website: <http://m-sp.org/>  
Coding: <https://github.com/matthias-springer/>



## Profile

I am a computer science graduate student, interested in programming languages, virtual machines, execution environments, program transformation and optimization, compilers, modularity, 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

- Since Oct. 2015 **Tokyo Institute of Technology** (東京工業大学), *Meguro-ku, Tokyo, Japan*,  
Programming Research Group, Department of Mathematical and Computing Sciences  
PhD Candidate, Academic Advisor: Prof. Hidehiko Masuhara.
- Sept. 2014 **Hasso Plattner Institute, University of Potsdam**, *Potsdam, Brandenburg, Germany*,  
- Sept. 2015 Master of Science, IT Systems Engineering, projected overall grade: 1.1  
*Master's project*: Spur to go faster: Low-level Functionality in a High-level Language  
*Master's thesis*: Nested Class Modularity in Squeak/Smalltalk  
Thesis supervised by Prof. Dr. Robert Hirschfeld.  
*Relevant coursework*: VMs and Execution Environments, Context-oriented Programming.
- Sept. 2013 **University of California, San Diego**, *La Jolla, CA, USA*,  
- June 2014 Visiting student, Department of 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 **Hasso Plattner Institute, University of Potsdam**, *Potsdam, Brandenburg, Germany*,  
- July 2013 Bachelor of Science, IT Systems Engineering, overall grade: 1.0 (GPA 4.0), rank 1-3/74,  
*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 **Josef-Hofmiller-Gymnasium**, *Freising, Bavaria, Germany*,  
- June 2009 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 publications: <http://m-sp.org/>.

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## Research Experience

- Oct. 2014 **Context-oriented Programming**, *Hasso Plattner Institute, Software Architecture Group*,  
- July 2015 Worked on ContextAmber, a COP implementation for Amber Smalltalk. Implemented and evaluated concepts for partial method inlining and inlined layered method invalidation.
- March 2014 **Entity-Property Queries**, *University of California, San Diego*,  
- Nov. 2014 Database research with Prof. Papakonstantinou and Chunbin Lin, Implemented and evaluated algorithms and data structures for Entity-Property queries in relational database systems, and compared them against latest column store techniques.
- May 2011 **Student Research Assistant**, *Hasso Plattner Institute, Internet Technologies and Systems Group*,  
- Apr. 2013 *SOA Security Lab*: a browser-based simulation system for modelling and executing SOA security scenarios. Worked on the Oryx Modelling Editor, developed a database backend with Grails and PostgreSQL, and integrated the system into an existing OpenNebula VM network.  
*tele-lab*: a hands-on system for teaching and practising network security scenarios. Working on the user interface using Grails.

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## Work Experience

- April 2012 **Hasso Plattner Institute**, *Potsdam, Germany*, Teaching Assistant,  
- March 2015 Lectures: Mathematics II (Dr. Börner), Software Architecture (Prof. Dr. Hirschfeld), Software Engineering I (Prof. Dr. Hirschfeld).
- June 2014 **Google Inc.**, *Boulder, CO, USA*, Software Engineering Intern,  
- Sept. 2014 Working on a business event process engine for an internal Google payments system, using Megastore, F1/Spanner, Java, and Guice.
- Aug. 2012 **Senacor Technologies AG**, *Munich, Germany*, Software Development Intern,  
- Oct. 2012 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 **TNG Technology Consulting GmbH**, *Munich, Germany*, Software Development Intern,  
- Oct. 2011 Developed plugins for Atlassian JIRA/Confluence (Subversion commit monitor) and Hudson/Jenkins (job status monitor). Set up an LDAP server for user authentication for SSH and Atlassian JIRA/Confluence.
- July 2005 **Rechenzentrum Garching (RZG) of the Max Planck Society**, *Munich, Germany*, Intern.

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## Projects

- Sept. 2014 **ME310 Global Team-based Product Innovation & Engineering**,  
- July 2015 *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 car-to-passenger and car-to-pedestrian communication in autonomous cars, using design thinking methods.
- June 2013 **Google Summer of Code 2013**, *European Smalltalk User Group (ESUG)*,  
- Sept. 2013 Implemented the Athens vector graphics library in Amber Smalltalk, a Smalltalk execution environment running entirely in the web browser, using HTML5 Canvas. Developed a Morpheic-like framework for building user interfaces on top of Athens.  
*Project mentors*: Nicolas Petton, Igor Stasenko.
- Dec. 2012 **MagLev Database Explorer**,  
- June 2013 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.

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## Achievements

- Since Oct. 2015 **Monbukagakusho (MEXT) Scholarship (文部科学省奨学金)**,  
Japanese government scholarship for research students, covering tuition and living expenses.
- Sept. 2014 **Hasso Plattner Scholarship**,  
- July 2015 One-year scholarship awarded to the best Bachelor graduates.
- March 2015 **Media Hack Day Berlin**, *Second Prize, Allryder API Prize, Fab Lab Berlin Prize*,  
Developed GREENtire, an iOS app which consolidates useful information from different sensors of the car and from partner APIs to evaluate the driving behavior.
- Sept. 2013 **German Academic Exchange Service Scholarship (DAAD Jahresstipendium)**,  
- May 2014 German government scholarship from the German Academic Exchange Service (Deutscher Akademischer Austausch Dienst, DAAD) to study at a North American university for one academic year, covering tuition and living expenses.
- 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 algorithms.
- 2007 **German Federal Competition in Computer Science**,  
- 2010 [2009/2010] 1<sup>st</sup> prize in first two rounds, invited to final round (*University of Freiburg*)  
[2008/2009] 2<sup>nd</sup> prize in first two rounds  
[2007/2008] 1<sup>st</sup> prize in first two rounds, invited to final round (*Max Planck Institute for CS*)  
Participated 3 years in a row. 30/around 1100 participants are invited to the final round.
- 2008/2009 **German Federal Competition in Mathematics**, 3<sup>rd</sup> prize in first round.

Papers, evaluation and certificates: <http://m-sp.org/>

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## 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 Design Patterns (B), Extreme Programming (A), BDD (A), Git (B), Jenkins (A), Scrum (A), Subversion (A), TDD (A), UML (B).
- Engineering
- Server OS Debian/Linux Server (B), Windows Server (A).
- Web CSS (A), Grails (B), HTML (A), JavaScript (A), jQuery (A), Ruby on Rails (A).
- Certifications 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).

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

Digital verification: <http://goo.gl/tUV71>, Transcript ID: 963416 and 963421, Access Code: 62478569

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## 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: July 18, 2015