

# Carsten Karbach

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## Personal data

date of birth 13th March, 1989

birthplace Heinsberg

nationality German

## Qualification summary

Software Engineer with detailed knowledge of object oriented design, applied software architecture, design patterns and test-driven development. Technical lead of a web application development team and contributing to international software projects. Development of distributed and platform-independent applications in multiple programming languages such as PHP, Java, JavaScript, C++ and C#. Hands-on experience with agile development, test automation, continuous integration and revision control. Master's degree in Technomathematics, combining applied mathematics and computer science, consecutive to the bachelor's degree in Scientific Programming coupled with a parallel apprenticeship.

## Professional Experience

**since 09/2012** **Software engineer**, *Forschungszentrum Jülich – Jülich Supercomputing Centre.*

web development Technical lead of a web development team. Requirements analysis, design, project management, implementation, code reviews and deployment of PHP web applications for submission and reviewing of scientific projects requesting compute time on supercomputers. Daily use of Apache, Composer, jQuery, relational databases, consuming and producing of REST-APIs. Jenkins server used for running unit, Selenium and integration tests. Porting the application with Docker.

training and talks Mentor for undergraduate students and their theses projects, internal development workshops. Setup of IDE, introduction to git and test-driven development. Presentations and training in architecture, usage and adaption of own software developments.

Human Brain Project Architecture, implementation, tests and maintenance of a REST-API for HPC account administration in context of the Human Brain Project. Import and synchronization of accounts into an LDAP database.

visualization Evaluation of computer-generated holography as scientific visualization technique.

Parallel Tools Contributor for the IDE Eclipse Parallel Tools Platform (PTP) in Java. JUnit tests and design of XSD for data exchange. Presentations and tutorials on monitoring architecture and usage of PTP.

LLview Refactoring and extensions of cluster monitoring framework written in Perl.  
**09/2010–08/2012 Software engineer (part time)**, *Forschungszentrum Jülich – Jülich Supercomputing Centre*.  
GUI development for PTP with Java. Implementation of LLview functionality as plug-in for Eclipse. Parsing XML-data of a monitored cluster and visualization with SWT.

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## Study

**09/2010–08/2012 Master of Science in Technomathematics**, *Aachen University of Applied Sciences*, Campus Jülich, Overall grade: *very good*.  
combination of applied mathematics and computer science  
courses Distributed systems, scientific visualization, software engineering, parallel algorithms, parallel system architectures, image processing, stochastics, operations research, computer mathematics  
Master's thesis A highly configurable simulator for job schedulers on supercomputers  
**09/2007–08/2010 Bachelor of Science in Scientific Programming**, *Aachen University of Applied Sciences*, Campus Jülich, Overall grade: *very good*.  
Bachelor's thesis Design of a web interface for the supercomputer monitoring tool LLview

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## Professional Education

**09/2007–08/2010 Mathematical and Technical Software Developer**, *Forschungszentrum Jülich – Jülich Supercomputing Centre*, Overall grade: *excellent*.  
Parallel professional education and study in Scientific Programming

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## Software Skills

general Unix, REST-APIs, DBMS, SQL, Apache, jQuery, Composer, Jenkins, Docker, Symfony, Silex, Android, XML, XSD, XSLT, JUnit, Selenium, MPI/OpenMP  
tools git, Subversion, Eclipse, Unity, Android Studio, ssh, Ant, CMake, L<sup>A</sup>T<sub>E</sub>X, Xcode  
programming PHP, Java, JavaScript, C++, C#, Perl, Objective-C  
languages

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## Language Skills

German **native**  
English **fluent**

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## Interests

mobile applications Development of mobile applications for Android. Release of an open source dictionary administration tool named VoBox as well as a board game called MoTAC on Google Play. Game development with Unity and C#.  
other soccer, dancing