

# Alexander Alexandrov

## Contact

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## Personal

Born on May 24, 1985 in Sofia, Bulgaria.

Dual Bulgarian/German citizenship.

Fluent in German and English.

## Education

PhD in Computer Science (summa cum laude), Technische Universität Berlin, 2018.

MSc in Computer Science (summa cum laude), Technische Universität Berlin, 2011.

BSc in Computer Science, Universität Mannheim, 2008.

## Employment History

Applied Scientist at the [Amazon Development Center Berlin](#), 2018–current.

Research Assistant at [Technische Universität Berlin](#), 2011–2017.

Intern at the [Centre for Advanced Studies](#) at IBM Labs, Toronto, 2011.

Student Assistant at [Technische Universität Berlin](#), 2009–2011.

Freelance Developer, 2007–2009.

## Selected Publications

For a full list of my publications please visit my [my DBLP page](#).

### *Journal Articles*

[Representations and Optimizations for Embedded Parallel Dataflow Languages](#). *ACM Trans. Database Syst.* 44(1), 2019.

[Implicit Parallelism through Deep Language Embedding](#). *SIGMOD Record* 2016.

[The Stratosphere platform for big data analytics](#). *VLDB Journal* 2014.

## Proceedings

[Implicit Parallelism through Deep Language Embedding](#). *SIGMOD 2015*.

[Benchmarking in the Cloud: What It Should, Can, and Cannot Be](#). *TPCTC 2012*.

## Professional Service

### Reviewer

I have served as an external reviewer for various peer-reviewed conferences and journals, among which [SIGMOD](#), [VLDB](#), [TODS](#), and [JFP](#).

### Chair

Co-chair of the [The 16th International Symposium on Database Programming Languages \(DBPL 2017\)](#), held in conjunction with [VLDB 2017](#) on September 1st, 2017, in Munich, Germany.

### Teaching

I have co-organized the following courses at TU Berlin.

Datenbankpraktikum (*SS 2012, SS 2013, SS 2017*)

Database Technology (*WS 2011, WS 2012, WS 2013, WS 2014, WS 2015*)

Implementation of Database Systems (*WS 2011, WS 2012, WS 2013, WS 2014, WS 2015*)

Big Data Analytics Project (*SS 2014, WS 2014, SS 2015, WS 2015, SS 2016, WS 2016, WS 2017*)

## Awards

SIGMOD 2015 research highlight award for [“Implicit Parallelism through Deep Language Embedding”](#).

## Open Source

I am the lead developer of the following open-source projects.

**Emma.** <http://emma-language.org>

A quotation-based Scala DSL for declarative, auto-optimized scalable data analysis pipelines.

Technologies: *Scala, Scala Macros, Spark, Flink*.

**Peel Framework.** <http://peel-framework.org>

A framework that helps you to define, execute, analyze, and share experiments for distributed systems and algorithms.

Technologies: *Scala, Java, Spring*.

**Myriad Data Generator Toolkit.** <http://myriad-toolkit.com>

A development toolkit for scalable data generators.

Technologies: *C++, Python, XML*.

## About Me

Born in Sofia, Bulgaria, I moved to Germany to study at the age of 19. Upon completing my bachelor's degree in Mannheim, I moved to Berlin, where I attended TU Berlin for MSc and PhD degrees in computer science.

My core expertise is in the area of data management, with focus on systems, methods, and tools for scalable data analytics and systems benchmarking. As a member of the [Database Systems and Information Management Group](#) chaired by Prof. Dr. Volker Markl between 2009 and 2017, I have developed deep understanding of the fundamental principles of scalable data management, and am always looking for practical opportunities to apply my knowledge in practice and expand my area of expertise.

I have excellent coding skills and extensive hands-on experience with a variety of systems and tools, as illustrated by the following (incomplete) list.

**Programming Languages:** Scala, Java, C/C++, Python, SQL, PHP, JavaScript, CSS, HTML.

**Systems:** Dataflow Engines (Spark/Flink/Hadoop), RDBMSs (DB2, Postgres, MySQL).

**Data Science:** I have a solid understanding of the ML methods and tools used for modern data analysis as well as working experience with the most common software libraries (e.g. Pandas, NumPy, DNN Frameworks such as TensorFlow and MXNet).

**Infrastructure & Deployment:** Git/Mercurial, Jira/GitHub, Maven/SBT/Make, Sonatype.

In addition, I can navigate the trade-offs of data management paradigms such as OLAP vs. OLTP workloads, batch vs. stream processing, strong vs. eventual consistency, etc.

As the lead developer of several open-source projects and occasional freelancer, I am also familiar with state-of-the-art methods for software development (e.g., agile, Scrum) and have prior experience with those in industrial, open-source, and academic working environments.

As a researcher with 5+ years of academic experience, I have the ability to understand and critically evaluate technological solutions beyond the hype-driven market perspective. Based on my experience in teaching, I can successfully communicate technological insights to non-experts both in written and presentation form. Finally, having contributed to multiple publications in top-ranked research journals and conferences, I am also capable of rigorously applying the scientific method in order to solve relevant engineering and research problems either on my own or within a team of people. I am a firm believer that an elegant technical solution is always simple.

Outside of work, my interests are mainly in arthouse cinema and musical folklore from the Balkans and the Middle East. I play the oud as a hobby.

Last updated: 26th March 2019

<http://aalexandrov.name/assets/pdf/cv-en.pdf>