

Curriculum Vitae

Personal data

Name	Rasmus Resen Amossen
Born	June 9th, 1977, Gentofte, Denmark
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Civil status	Married, three children (born 2006, 2010 and 2016)

Education

06/2007 - 11/2010	PhD in computer science from the Efficient Computation research group at the IT University of Copenhagen. Fields: algorithms, data mining and databases. Project title: <i>Scalable Query Evaluation in Relational Databases</i> .
09/1997 - 11/2005	Cand.scient in computer science at the University of Copenhagen. Primary interests: algorithms, optimization and databases. Master thesis: <i>Constructive algorithms and lower bounds for guillotine cuttable bin packing problems</i> , with David Pisinger as supervisor.
08/1993 - 06/1996	Graduated (received my high-school certificate) from Gladsaxe Gymnasium.

Publications

2011	<i>A New Data Layout For Set Intersection on GPUs</i> ; co-writer: Rasmus Pagh; presented at IEEE IPDPS 2011, Anchorage (Alaska), USA.
2010	<i>Better size estimation for sparse matrix products</i> ; co-writers: Rasmus Pagh, Andrea Campagna; presented at RANDOM 2010, Barcelona, Spain.
2010	<i>Vertical partitioning of relational OLTP databases using integer programming</i> ; presented at SMDB 2010, Long Beach, California.
2010	<i>Multi-dimensional bin packing problems with guillotine constraints</i> ; co-writer: David Pisinger; published in Computers and Operations Research.
2009	<i>Faster Join-Projects and Sparse Matrix Multiplications</i> ; co-writer: Rasmus Pagh; presented at the ICDT conference in Skt. Petersburg, Russia.
2005	<i>Constructive algorithms and lower bounds for guillotine cuttable bin packing problems</i> , master thesis, DIKU.

Entrepreneurship

2011 - 2013	Co-founder and primary developer of EuclIT (euclit.com), a performance optimization tool for classical row store databases focusing on vertical partitioning. The prototype was able to analyze a workload, solve the associated NP-hard combinatorial optimization problem, re-structure database tables and indexes accordingly, and automatically rewrite SQL targeted the original table structure to match the new structure.
2006 - 2010	Co-founder and primary developer of Kuneco, a “questions and answers” service at kuneco.com, using a mathematical model to automatically guide each question to the users that were estimated to provide the most valuable answers for that question. Participated in Venture Cup 2007 with this project and won 10.000 DKK for best pitch in phase 2 of the competition.

Work experience

- 01/2015 - present Senior .NET Solutions Architect at NNIT
Main architect at Statens Administration. Responsible for developing a target architecture for the enterprise that all new IT systems should conform to, and for system specific architecture. Was responsible for the architecture of a generalized administration system for various loan types (the largest among these was *Studielån* with more than 300.000 loaners and a total debt of more than 20 billion DKK), that should replace the existing set of legacy systems. Keywords included event sourcing, event-driven design, scale-out (rather than scale-up), ASP.NET, Redis, Hangfire. The technical design was made in close collaboration with a UX to rethink existing work processes, and to maximize user friendliness and likability. Responsible for the Product Backlog. Made query performance tuning in a public administrative system that reduced execution times from minutes and timeouts, to less than a second. Was architect on an extension of the sales system used by 2/3 of all pharmacies in Denmark, adding personal and pharmacy-wide sales analytics on semi-live sales data using Azure and Power BI. Other activities included business development in the cloud team, sales activities including offer “crafting”, and generally a high degree of customer engagement.
- 03/2011 - 12/2014 Developer and “technical responsible” at Edlund A/S
Responsible for cross-group technical initiatives in the Insurance department (sizing around 40 developers, early 2014). Executed an elaborate strategy for writing tests and testable code (using the S.O.L.I.D. principles). Introduced an in-house web library for video tutorials and presentations of various technical subjects. The library was later adopted company-wide (around 200 employees). Responsible for a ground-up redesign of a WCF based web service framework, a task which included creation of a new library for data model value constraining (building on top of the principles of JSR-303 for JAVA and Validation Application Block for .NET). The library was later adopted company-wide. Responsible for multiple out-sourcing tasks sent to Sri Lanka and India. Various tooling and ad hoc SQL query performance tuning.
- 07/2006 - 05/2007 Full time developer at Rapidis
Worked with various algorithm problems, primarily oriented to graph theory. E.g. the Vehicle Routing Problem with Time Windows (VRPTW) and design/implementation of a fast algorithm for deducing causes of breakdowns in physical networks. In the latter solution, I achieved an optimization from hours of execution time and a search depth limited to 5 nodes, to an unbounded search depth and no execution times over 0.1 seconds observed. Construction of “fair” area division using Voronoi graphs. Design and implementation of a generalized framework for parallel computing for multi-core processors.
- 08/2003 - 01/2006 Consultant for Kalus
Responsible developer and architect on a system for online surveys. Was responsible for system adjustments for use in the Danish Parliament (Folketinget), DR (Danmarks Radio) and The Royal Library (Det Kongelige Bibliotek). Was later responsible for a complete redesign of the whole system. Among the tasks were design of a new scripting language and implementation of a compiler “from scratch” in PHP, development of modularized reporting framework so that the same data construction mechanism could produce output to several media (HTML / PDF), auto-layout system with transactions, internationalization, database optimization, etc. Was furthermore responsible for employment of two developers and one graphic designer.
- 07/2003 - 01/2005 Consultant for Danish Interpretation Systems (DIS)
Responsible developer and architect of a larger system for managing employees, hierarchic groups and locations with timezones. Moreover I designed a generalized reporting framework in which there was a very high level of flexibility

regarding the definition of 1) data extraction and 2) presentation hereof.

01/2002 - 03/2004	Part time employee in Maconomy Employed in the portal group. Made relatively large redesigns, e.g. implementation of server side representation of client side screen layouts.
2000 - 2003	System administrator on Rigshospitalets Kollegium (a dormitory) Implemented a complete redesign of a large intranet for handling print- and Internet traffic quotas, “scoring index” and committee administration for >420 users. Through a web interface non-linux-skilled people could manage firewalls, mail server and file sharing (samba) in a protected and user friendly way.
08/2000 - 08/2001	Part time employee in Realtime A/S Java developer. We designed a portal for phone providers to control cell phone services.
07/2000	Full time system administrator at Realtime A/S
09/1999 - 06/2000	Freelance for Divitech Implemented a driver in C++ for display panels at TeleDanmark. System administrator.

Other experiences

2017	Author of the Pluralsight course, <i>Using Advanced Data Structures in Modern Applications</i> .
2016	Author of the Pluralsight course, <i>An Introduction To Algorithmics</i> .
1998 - 2001	Tutor (rusvejleder) at the math studies.

Languages

Communication	Danish: Perfect, both written and spoken. English: Fluently, both written and spoken. Understands German.
Programming	C/C++, C#, Java, GWT, Python, Perl, PHP, Bash

Spare time interests

Take care of my social circle. Cooking. Photography. Cocktails. Hear and especially play music (playing piano, oil drums, drums and percussion). Won gold in “Berlinske Rytmiske Musikkonkurrence”¹ (above Cæcilie Nordby and Doky Brothers) as ten year old.

Copenhagen, December 30, 2017

¹a large dansih rhythmical contest