

Eirik Bakke

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Education

Massachusetts Institute of Technology. 2008–16: Doctor of Philosophy (PhD) and Master of Science (SM) in Computer Science (Cambridge, MA). Dissertation advised by Prof. David R. Karger. Minor in Management.

Designed and developed SIEUFERD, an expressive graphical query interface for relational databases. Work published at premier venues in the research areas of Database Systems, Information Visualization, and Human-Computer Interaction; see below.

Princeton University. 2004–08: Bachelor of Science in Engineering (BSE) in Computer Science (Princeton, NJ). Concurrently satisfied all degree requirements for BSE in Electrical Engineering. Attended on full scholarship.

Selected projects: Fall 2007: Extended *Opal/Simics*, a SPARC processor model simulator, to evaluate trace cache performance. Spring 2006: Modified the *coLinux* virtualization system to run *PlanetLab*, a distributed resource sharing platform, on Windows. Fall 2005: Implemented a protected-memory multitasking OS for x86, including page swapping, file system, and a window system with per-process virtual display buffers.

Work

Ultorg. October 2016–present: Founder (Washington, DC). Stealth-mode startup developing general-purpose, user-friendly database software. 2019: Principal Investigator on *SBIR Phase I* award from the National Science Foundation (\$225K).

Cloudera. Engineering Intern (Palo Alto, CA). Summer 2013: Developed an XML-based templating system for constructing interactive Hadoop cluster management workflows. 10 weeks. Summer 2012: Implemented service management and monitoring support for *Apache Flume*, a log distribution system, in the *Manager* product. Work was released and used in production at major customer sites by October. 11 weeks.

Adobe Systems. Research Intern (San Jose, CA). Summer 2009: Developed a *git*-style version-controlled persistence library for Flash. 9 weeks.

Data Domain. Software Engineering Intern (Santa Clara, CA). Summer 2007: Developed a modified NFS client and FUSE file system to intercept and optimize I/O operations from proprietary backup extraction tools. 8 weeks. Summer 2006: Implemented a method for uploading files from a portable ONC-RPC client while skipping data segments already present on the server's compressed file system. Ported in-house C libraries and GNU build system to support cross-compilation and testing of Windows executables as part of the established build process. 8 weeks.

Bergen Kulturskole. 2003–04: Administrative assistant at a performing arts school (Bergen, Norway). Managed CRM system data for 3000 students and 200 employees, performed marketing and graphic design tasks, stage-managed events including one with 400 performers (three orchestras, ballet troupe, full SATB choir etc.). 11 months.

Teaching. Fall 2015: Instructor, *6.170 Software Studio* (MIT). May 28–29, 2014: *Data Journalism—New Techniques and Tools*. Workshop for IPYS Venezuela (Caracas). 2010–2015: TA, *6.813 User Interface Design*, *6.170 Performance Engineering* and 4 other courses (MIT). Summer 2011: Technical Instructor, *Middle East Education through Technology* (Jerusalem). 7 weeks. Spring 2008: TA, *System Design and Analysis* (Princeton University).

Skills

Software Development. Regularly working with Java, Maven, git, ANTLR, PostgreSQL, Oracle, Swing. Strong UNIX background. In past projects: C, JavaScript, Python, OCaml, F#, Knockout, Ruby/Rails, JavaEE, Hibernate, SAXON/XQuery, C++, assembly (x86, MIPS, SPARC, DSP56000), Windows/CE API, OpenGL, PHP. Heavy user of Adobe Creative Suite (Photoshop, Illustrator, InDesign, Premiere). Committer on the Apache NetBeans project.

Electronics. Digital logic, microcontrollers, FPGAs. 2006, 2008: 2 CPU designs in Verilog, including a PDP-8. April 2004: 1st Prize, *Norwegian Contest for Young Scientists* for a CPU designed and built from 74-series logic (Oslo, Norway).

Languages. Fluent in Norwegian (native) and English.

Publications and Talks

Refereed Articles. June 2016: E. Bakke and D. Karger. *Expressive Query Construction through Direct Manipulation of Nested Relational Results*. SIGMOD '16. October 2013: E. Bakke, D. Karger, and R. Miller. *Automatic Layout of Structured Hierarchical Reports*. InfoVis '13. May 2011: E. Bakke, D. Karger, and R. Miller. *A Spreadsheet-Based User Interface for Managing Plural Relationships in Structured Data*. CHI '11. January 2011: E. Bakke and E. Benson. *The Schema-Independent Database UI: A Proposed Holy Grail and Some Suggestions*. CIDR '11.

Invited Talks. December 5, 2013: *Automatic Layout of Structured Hierarchical Reports*. Tableau Software (Seattle, WA). October 18, 2011: *Table-, Form- and Report-based Database GUIs, and How to Stop Building Them*. Google Boston/ITA Software (Cambridge, MA). February 18, 2010: *A Common Class of Business-Oriented Database Applications or: How I Hope to Achieve what Microsoft Access Did Not*. IEEE Computer Society, GBC/ACM (Cambridge, MA). October 6, 2009: *On Making Database GUI Development as Declarative as SQL*. Endeca Technologies (Cambridge, MA).