Ben Hekster

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http://www.hekster.org/Professional/

Extensive professional software engineering experience.   Master's Degree cum laude in Electronic Engineering. Ability to learn rapidly, excellent object-oriented analytical and design skills.   Creative, hands-on, and outspoken; able to assume any additional responsibilities as needed.   Outstanding spoken and written communication skills; very effective in cross-functional and customer-facing roles.   Fluent Dutch and English speaker, varying degrees of German, Hebrew, Portuguese, Russian, and Arabic.

Seeking a challenging position in team leadership, architecture/design, and development; in high-performance/low-latency computing; C++, on Unix, Win32, OS X, or cross-platform.

Skills

Programming languages:	C++11/14/17, C99
Scripting languages:	perl, bash
Operating systems/Platforms:	Unix (Linux, Solaris, POSIX; Xlib, X Toolkit), OS X (Cocoa), Win32
Development tools:	GNU (gcc, autotools), Xcode, Visual Studio, Mathematica
Databases:	MySQL, SQLite, BerkeleyDB
Documentation tools:	Sketch app, TeX (XeLaTeX, amsmath), Adobe Illustrator, FrameMaker, Microsoft Office

Professional Experience

September '17 – current	FogHorn Systems, Sunnyvale, CA

As **Principal Staff Engineer**, contributed to the maintenance and development of the company's industrial internet-of-things (IIoT) offering.   Over time, assumed team leadership and management responsibilities (hiring/reviews), coordinating the activity of remote and off-shore team members.   Solidified the use of Scrum process by establishing stand-ups, demos, grooming, and planning.

Proposed, designed, led, and contributed significantly to the Streaming API and 'edgification' initiatives which provide a Python-based API to real-time streaming analytics and transparent machine learning (ML) model transformation, supporting TensorFlow, TFLite, TVM, and OpenVINO; using C++ code generation based on XSLT.

Drove performance optimization of the company's domain-specific language for real-time stream analytics processing, leading to three orders of magnitude speed improvement and at least one order of magnitude reduction of memory footprint.   Proposed and drove JSON to Avro migration, improving performance by multiple orders of magnitude.

May '13 – September '17	BlueKai (acquired by Oracle), Cupertino, CA

As **Principal Software Engineer**, acted as team lead and designer/contributor of a low-latency cluster-distributed graph database in C++11 under Linux and OS X. Cluster supported in excess of 290 k/s operations at sub-millisecond latency; features included statement-level replication, transparent cluster rebalancing. Implemented front-end UI using a custom nginx module with XML/XSLT. Extremely reliable: never suffered a crash in production.

Designer of the ID space architecture which enabled the integration of dozens of independent ID types within the BlueKai ecosystem.   Represented BlueKai's privacy/opt-out efforts within the larger organization.

Spearheaded the use of the Scrum process and continuous integration, code reviews, bringing in QA as an integral part of the development process.

Contributed to the development and maintenance of the group's flagship pixel server; ported the Linux server to Xcode/LLVM.   Conversion to autoconf and support for multi-platform builds.   Developed line-of-business tools under OS X/Cocoa.

Initiated and led off-shore greenfield development project.

March '09 – March '13	DigitalGlobe, Walnut Creek, CA (headquarters in Longmont, CO)

As **Senior Software Engineer**, led development using a full Agile methodolgy of large-volume advanced geospatial image processing (GIS) system written in C++ and Java and using GPU-based image processing.   Conversion to an autotools-based build.   Implemented clustering under Moab/TORQUE.

Led a team using an Agile 'lite' methodology to develop and operationally maintain a cluster-based geospatial image processing application, written in Java and C++.   Overcame significant technical challenges in refactoring a legacy code base and the organizational challenges of leading from a remote office while simultaneously meeting quarterly commitments to our government customer (NGA).   Coordinated cross-functionally and with subcontractor.   Managed the orderly shutdown of the program.

Developed a Win32/Linux cross-platform GUI in C++ for viewing extremely large GeoTIFF and ENVI images.

Team leadership role included Scrum master duties and writing and delivering performance reviews.   Assumed office management responsibilities including supply ordering, maintenance coordination, and regulatory compliance.

May '05 - December '08	SS8 Networks, Milpitas, CA

Principal Software Engineer responsible for development of electronic surveillance and lawful interception (wiretap) products.   Served as project **architect** and **team lead** in the development of a three-tier network management system for these products, using a MySQL cluster architecture.   Oversaw the off-shore outsourcing of development.

Contributed significantly to the implementation of this system, writing the front end based on Java Swing (JFC) and parts of the C++ tiers.

Developed multiple High Availability (HA) solutions using Veritas Cluster Server and Veritas Storage Foundation, with SAS storage arrays.

Assumed system adminstration tasks, including Solaris 10 JumpStart and Sun Studio 11 installation, OpenGrok Apache/Tomcat, and Solaris 9/10 deployment. Deployed Subversion source code management system.   Developed extensive Acrobat documentation using Structured FrameMaker and Illustrator.

October '03 - October '04	CaseCentral, San Francisco, CA

Software Engineering Manager responsible for the design and very closely involved with the implementation of a Linux/C++ Windows/Visual Basic document base normalization service, involving text and metadata extraction, document deduplication, and data warehousing to SQL Server and MySQL data bases.   Led a small and focused team of developers to a successful high-reliability and high-performance cross-platform and distributed service using CORBA and ActiveX, capable of processing 1 TB of documents per day. Installed and maintained a NIS/NFS infrastructure of a dozen Linux processors, bug tracking system (Bugzilla), and intranet.

October '01 - June '02	Minds and Technologies, Palo Alto, CA

Software Engineer for Internet Explorer browser bar ActiveX controls on Win32, capable of streaming capture and playback of audio and video to and from remote servers.   Produced a small-footprint, low-latency, and responsive multithreaded client on Win32, using WinSock and DirectShow.

February '00 - March '01	Consulting

Contractor for MacOS port of peer-to-peer file sharing client, in the process developing a POSIX abstraction layer.

Contractor for implementation of sparc/x86 Solaris/Linux C++ client-side e-commerce solution, using Web browser and console user interfaces.

Contractor for design of cross-platform client-side e-commerce solutions on Linux and Solaris using C++.

Contractor for development of real-time speech signal processing application, cross-platform Win32/MacOS C++.

February '98 - December '99	ReleaseNow.com (Release Software), San Carlos, CA

Team lead for MacOS/Win32 Electronic Software Distribution and trial software, coordinating engineering, production, sales/marketing, and quality assurance departments.

Senior Software Engineer, development of internal production tools under MacOS C++.   Development of MacOS-based FTP server and Unix-based 'vending machine'.   Managed and implemented cross-platform **localization** of MacOS and Win32 C++ software in foreign languages.

March '97 - December '97	BackWeb Technologies, Ramat Gan, Israel
	Senior Software Engineer, development of the Java (Swing) version of the BackWeb Internet 'push' client. Design and cross-platform implementation (MacOS, Solaris, and Java) of the BackWeb Interapplication Communication Protocol. Development of Macintosh-based content development and scripting tools.
January '94 - January '97	Odyssey Interactive Multimedia, Herzeliya, IsraelLtd., Ramat Hasharon, Israel
	Project lead for multimedia titles under Macromedia *Director*.
	Software Engineer, development of the Macintosh versions multimedia titles, including **localization** of multilingual versions in English, French, German, Spanish, and Italian.

Professional interests.   High-performance/low-latency computing, networks, human factors, and user interfaces. Member of the Association for Computing Machinery (ACM).

Independent

2021-*current*	Undergoing ground and flight training for **Private Pilot** certificate (PP-ASEL).
2021	**Amateur Radio Technician Class** license.
2021	Prototyping hardware design and firmware implementation of bare-metal ARM **flight simulator radio 'comms' panel** as a USB device and X-Plane plug-in. Evaluating STMicroelectronics STM32 series as a lower-complexity alternative.
2020	Hardware/PCB design and firmware implementation of bare-metal ARM **MIDI translator** using Nordic Semiconductor nRF52832.
2017-2019	Writing solutions manuals for the **mathematics textbooks** *A First Course in Graph Theory* using Mathematica, and *Differential Geometry* using LaTeX.
1999-2005	Developed a 100,000-line C++ **application framework** for cross-platform (MacOS, MacOS X, Win32, Linux, Solaris) application development.
2005, 2000	Port of GNU Linux/Solaris/embedded **cross-compilers and linkers** to MacOS CodeWarrior graphical integrated development environment.
2003	Developed a **USB driver** for Logitech QuickCam Web camera for MacOS.
2003	Web-published a solutions manual for the **mathematics textbook** *Abstract Algebra*.
2003, 1997	*AppleTalk Filing Protocol File System* (afpfs), **network file system** kernel module for mounting AppleShare volumes on Linux.
1993	*UpToDate*, a **file synchronization utility** under MacOS 7, in the process also translating a localized Portuguese version.
1990	*Cher*, an AppleShare **file server** for pre-System 7 Macintoshes.

Education

1986-1992	University of Twente, Netherlands

Master's degree (cum laude) in Electronic Engineering (**MSEE**), minor in Computer Science and additional Pure Mathematics components. Thesis in reflective object-based compiler architecture, design of a pure reflective object-oriented language.

Additional Courses

2001	San Mateo College, CA
Standard Arabic II, III.
1999-2000	UC Berkeley Extension, CA
Russian I, II, III; **Portuguese** I, II, III.
August '96 - August '97	Tel Aviv University, Israel
Hebrew language 3-5 (gimel-hey). Enrolled in Master's degree program in Pure Mathematics.
June '90 - January '91	Apple Computer, Cupertino, Macintosh System Software
Internship, development of an Installer script development tool (Object Pascal).
August '89	University of Oulu, Finland
Internship, implementation of a bulletin board and file-exchange system for PC clones (Turbo Pascal).

Extracurricular activities. **Chairman** of the student association's Scandinavian Exchange Committee, responsible for organizing student exchanges with universities in Finland and Sweden.