

Hakan Akkan

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*System&Parallel programming,
Web application development, Cloud computing*

Technical Skills

Operating Systems	Linux, MacOS, MS Windows	Programming Languages	Java, C, C++ Bash scripting (advanced) Python (intermediate)
Compiler Writing Tools	Flex scanner generator, Bison parser generator (advanced)	Web&Java EE Technologies	Spring Framework, Hibernate, (X)HTML, JavaScript, CSS, Ajax, DOM, XSLT, XPATH

Professional Experience

- 2013 May – Present **Software Development Engineer**, *Amazon.com*, Seattle, Washington.
Developing and maintaining a highly scalable backend service for Amazon.com website using Spring, Hibernate, Oracle, and AWS. Participating in team on-call rotation to tackle operations and high-severity issues.
- 2011 May – 2013 May **Junior Research Scientist**, *Ultrascale Systems Research Center, New Mexico Consortium & Los Alamos National Laboratory*, Los Alamos, New Mexico.
Conducted research on OS scalability in many-core systems. Studied and modified Linux kernel to remove the inherent system noise caused by the timer interrupt. Developed several research prototypes for multicore synchronization and OS supported asynchronous shared memory primitives.
- 2011 Fall **Graduate Teaching Assistant**, *Computer Science and Engineering, New Mexico Institute of Mining and Technology (NMT)*, Socorro, New Mexico.
Developed lab assignments in several compiler tools and technologies for *compiler writing* class. Responsibilities included giving a short lecture before each lab topics ranging from x86 assembly to optimizations, grading all class material, and helping students with their designs and implementations of their ANSI C compilers.
- 2009 Fall – 2010 Fall **Graduate Research Assistant**, *Computer Science and Engineering, NMT*.
Installed and experimented with multi-clustered Eucalyptus cloud computing platform. Ran simple distributed Hadoop applications for evaluation. Implemented and performance tested Role Based Access Control in Eucalyptus.
- 2009 Summer **Assistant System Administrator**, *Earth and Environmental Sciences, NMT*.
Maintained instructor, staff, and student computers (Windows XP, MacOS X, Linux) including software and hardware updates and problems. Designed and implemented a department printing accounting system leveraging Samba, CUPS, and, PyKota in RHEL 5. Experimented with Xen virtualization on RHEL 5 for application confinement.
- 2008 Summer – 2009 Spring **Web Application Developer**, *Hydrology Department, NMT*.
Designed and developed a Java web application for the Web calculators of the NSF funded CRONUS Earth Project. Provided an API for developers to easily manage and deploy online calculators. Installed and maintained a server machine to host the developed software. (*This project has grown into an independent study for my Master's degree.*)

2004 – 2006 **Helpdesk Operator**, *TR.NET Internet Service Provider*, Ankara, Turkey.
Aided customers mainly in dial-up networking and various software problems.

Education

2009 Fall **M.S. Computer Science with Information Technology Option**, *New Mexico Institute of Mining and Technology*, Socorro, New Mexico.

2006 Fall **B.S. Metallurgical and Materials Engineering**, *Middle East Technical University*, Ankara, Turkey.

Publications

2013 H. Akkan, M. Lang, L. Ionkov, *HPC runtime support for fast and power efficient locking and synchronization*, In Proceedings for IEEE Cluster 2013

2013 H. Akkan, L. Ionkov, M. Lang, *Transparently consistent asynchronous shared memory*, Proceedings of the 3rd International Workshop on Runtime and Operating Systems for Supercomputers

2012 H. Akkan, M. Lang, L. Liebrock, *Understanding and isolating the noise in the Linux kernel*, International Journal of High Performance Computing Applications

2010 D. Shin, H. Akkan, W. Claycomb, K. Kim, *Toward role-based provisioning and access control for infrastructure as a service (IaaS)*, Collaborative Computing Networking Applications and Worksharing CollaborateCom 2010 6th International Conference

2009 S. Marrero, B. Borchers, H. Akkan, F. Phillips, *Cosmogenic Cl-36 surface exposure age calculator*, *Geochimica et Cosmochimica Acta Supplement - Vol.73*, p.A836

Other Selected Experience

2010 Fall **Compiler writing**: Developed a compiler in C++ for a subset of ANSI C with a group of 4 people. I was mainly responsible for designing interfaces among different components and implementing first and middle stages of the compiler. Also implemented several compiler optimizations.

2008 Fall **Online form management system**: Developed a web service on a *LAMP* server in which users are provided a web interface to create, review, and digitally sign forms.

2008 Spring **Access control in Minix3 kernel**: Added capability concept to the Minix3 kernel. Implemented a *reference monitor* into the kernel which checks capabilities of every process making system calls.

2007 Fall **Cryptography using low-end embedded processors**: Developed RSA and ECC cryptography schemes in C and tested them on embedded processor simulators.

2007 Summer **LabVIEW Programmer**: Developed a LabVIEW application for remote controlling two spray motors that are used during plasma spraying process. Established all networking and communication requirements for the equipment.