

Hakan Akkan

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

Technical Skills

Operating Systems	Linux, MS Windows (advanced) MacOS (intermediate)	Programming Languages	C, C++, Java, Bash scripting (advanced) Python, Visual Basic, MATLAB, LabVIEW (intermediate)
Compiler Writing Tools	Flex scanner generator, Bison parser generator (advanced)	Web Technologies	(X)HTML, JavaScript, CSS, Ajax, DOM, XSLT, XPath, Java Servlets (advanced)

Professional Experience

2011 May – Present	Junior Research Scientist , <i>Ultrascale Systems Research Center, New Mexico Consortium & Los Alamos National Laboratory</i> , Los Alamos, New Mexico. Conducting research on OS scalability in many-core systems. Studying and modifying Linux kernel to remove the inherent system noise caused by the timer interrupt.
2011 Fall	Graduate Teaching Assistant , <i>Computer Science and Engineering, New Mexico Institute of Mining and Technology (NMT)</i> , Socorro, New Mexico. Developing lab assignments in several compiler tools and technologies for <i>compiler writing</i> class. Responsibilities include 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 , <i>Computer Science and Engineering, NMT</i> . 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 , <i>Earth and Environmental Sciences, NMT</i> . 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 , <i>Hydrology Department, NMT</i> . 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. (<i>This project has grown into an independent study for my Master's degree.</i>)
2007 Summer	LabVIEW Programmer , <i>Materials Engineering, NMT</i> . Developed a LabVIEW application for remote controlling two spray motors that are used during plasma spraying process. Established all networking and communication requirements.

- 2006 Fall – **Graduate Teaching Assistant**, *Materials Engineering, NMT*.
2007 Fall Taught Introduction to Materials Engineering Laboratory.
- 2004 – 2006 **Helpdesk Operator**, *TR.NET Internet Service Provider, Ankara, Turkey*.
Aided customers mainly in dial-up networking and various software problems.

Education

- 2010 – Present **Ph.D. Computer Science and Engineering**, *New Mexico Institute of Mining and Technology, Socorro, New Mexico (In progress)*.
- 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

- 2012 H. Akkan, M. Lang, L. Liebrock, *Stepping towards noiseless Linux environment*, Proceedings of the 2nd International Workshop on Runtime and Operating Systems for Supercomputers
- 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 R. Lopes, H. Akkan, W. Claycomb, D. Shin, *An opensocial extension for enabling user-controlled persona in online social networks*, Collaborative Computing Networking Applications and Worksharing CollaborateCom 2009 5th 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.
- 2009 Fall **Performance measurement of the Xen Hypervisor**: Modified Xen hypervisor to report the average time of a page update.
- 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.
- 2006 Fall **Digital forensics**: Designed and developed a Visual Basic application to extract usage history from a Windows PC such as browsing history, instant messaging logs etc. The tool was aimed at helping parents finding out the previous usage history of PC by children without intrusive software.