

# Jun Cheol Park

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## OBJECTIVE

Seeking a full time software engineer position to leverage my skills, knowledge, and expertise in computer systems and networks encompassing Cloud computing/storage, mobile/pervasive systems, wireless networks, social networks, Internet protocols, and network security.

## SUMMARY

- \* 2.5 years professional experience in architecture, development, and testing of **Cloud Computing Hosting Services**.
- \* 6+ years experience w/ production **High Performance Computing & Distributed Systems**.
- \* Extensive experience in Python-based development and test frameworks.
- \* Strong knowledge of Object Oriented Programming concepts & software design best practices.
- \* Strong knowledge of and experience with multihop ad hoc wireless networks and security.
- \* Experience with Software Development Life Cycle (SDLC) methodologies such as requirement analysis, design, development, testing, and deployment.
- \* Extensive Experience in Agile/Scrum Software Development.
- \* Strong ability to work independently as well as a team member: also a quick learner.

## TECHNICAL SKILLS

**Programming Languages:** C, C++, Java, Python, DrScheme, and Visual C++.

**Cluster & Cloud Computing Technologies:** OpenVZ (2.6.18 based kernel), Linux Virtual Server (LVS), High Availability (HA) Linux, MySQL active-active (NDB) clustering, RHEL/CentOS Clustering, EqualLogic iSCSI SAN arrays, RedHat Global File System (GFSv1/v2), and Kernel-based Virtual Machine (KVM).

**Distributed File Systems:** GlusterFS (fully distributed file system) and MooseFS (conceptually similar to Google file system or Hadoop DFS)

**Network Technologies:** Socket programming, MadWiFi Linux IEEE 802.11 Driver Programming, Peer-to-Peer (Bit-torrent protocol), Click Modular Router programming, NS-2 network simulator programming

**Version Control:** CVS, SVN, and GIT

**IDEs:** Eclipse, Visual Studio .NET

**Operating Systems:** Linux RHEL/CentOS 5, 6

**Development Methodologies:** Agile Software Development, Extreme Programming

**Distributed Systems:** HP-Exemplar, Intel-Paragon, Cray-YMP Supercomputer, Linux-based clustering

## EDUCATION

### University of Utah

Ph.D., Computer Science

Dissertation: Channel-Error and Collision Aware, Secure Multihop Ad Hoc Wireless Networks

Advisor: Prof. Sneha Kumar Kasera

Salt Lake, UT

Nov 2008

### Yonsei University

Master, Computer Science

Bachelor, Computer Science

Seoul, Korea

Feb 1996

Feb 1994

**EXPERIENCE****Senior Engineer & Cloud Architect****NTT/Verio,****Orem, Utah**

Cloud Hosting Product (KVM-based)

Jan 2011 – Present

- Designed and developed cloud computing and storage services. Aimed at providing cost-effective and highly scalable multi-tenant Windows and Linux guest Virtual Machines (VMs) using the Kernel-based Virtual Machine (KVM) hypervisor.

**Environment:** KVM, RHEL/CentOS, GlusterFS, MooseFS, NEC Fault-tolerant Server, CloudStack, and OpenStack Swift.

**Senior Engineer & QA Technical Lead****NTT/Verio,****Orem, Utah**

Cloud Hosting Product (OpenVZ-based)

Jan 2009 – Dec 2010

- Designed and developed Cloud computing services to provide virtual private servers for web, database, and email hosting using OpenVZ platforms.
- Architected an agile test-driven development framework in Python used by a large team of cloud system developers. Established and led a QA team to conduct unit-tests, integration tests, regression tests, and acceptance tests in an automated test framework.

**Environment:** OpenVZ, RHEL/CentOS Cluster Suite, LVS, HA Linux, IPTables, GFSv1/v2, CentOS 5.x and iSCSI SAN arrays.

**Networking, Security & Distributed Systems Researcher****University of Utah, School of Computing****Salt Lake, Utah**

Multirate Adaptation Schemes for Multi-hop Wireless Networks:

Sep 2006 - Nov 2009

- Developed novel multirate adaptation schemes that efficiently consider both collisions and channel-errors in multihop ad hoc wireless networks.
- Implemented and evaluated the multirate adaptation schemes using Click toolkit in the Emulab wireless testbed. Created the Click-compatible version of Madwifi-0.9.3 IEEE 802.11 driver on Linux-2.6.20.6 as well as relevant Click rate-decision modules.
- Showed 20%-50% improvements in throughput on 3-hop ad hoc paths, compared to the default multirate scheme in Madwifi, SampleRate.

Securing Multihop Ad Hoc Networks

Jan 2006 - Aug 2006

- Developed novel methodology to secure ad hoc networks against data injection attacks by placing firewall functionality at strategic locations in the ad hoc networks.
- Designed an architecture to determine the location of the attackers. Architecture uses a separate control network (e.g., a cellular network in this work) in conjunction with ad hoc networks to provide a provable attack detection mechanism.

Ad Hoc Routing Path Metric

Sep 2004 - Dec 2005

- Developed a new path metric, that considers both collisions and channel-errors, for accurately finding high-throughput paths in multihop ad hoc wireless networks.
- Showed that this metric performs very well and finds the best ad hoc paths, in contrast to the existing metric, ETT (expected transmission time).

Wireless Multicast

Sep 2003 - Aug 2004

- Developed a novel ad hoc routing algorithm in the context of a hybrid wireless architecture that uses 802.11-based ad hoc wireless networks in conjunction with the cellular multicast.
- Implemented the 3G BCMCS (Broadcast/Multicast Services) protocols in the existing ns-2.
- Evaluated this algorithm using enhanced ns-2 network simulations in the context of 3G BCMCS standard.

**Environment:** Emulab Distributed System Testbed, IEEE 802.11a/b/g, Click toolkit, Linux (Fedora Core 6), and NS-2 network simulator.

**Distributed Systems Engineer II****Samsung, Supercomputing Center****Yongin, Korea**

Scalable Alpha-CPU Clustering System for High Performance Computing Applications

1999 - 2001

- Designed and developed a 128 Alpha-CPU clustering system using Myrinet Gigabit networks.

Parallelizing Scientific Applications on Intel Paragon &amp; HP Exemplar

1996 - 1998

- Parallelized various scientific applications including fluid dynamics and a magneto-resistive head using the standard message passing library, Message Passing Interface (MPI) and Parallel Shared Memory Directives on various platforms.

**Environment:** HP- Exemplar, Intel Paragon, Alpha CPU Clustering system, MPI, OpenMP, and Unix (HP-UX).**Teaching Experience****University of Utah, Teaching Assistant****Salt Lake, UT**

Network Security

Spring 2007

- Cryptography, message digests, and secure protocols

Introduction to Computer Science I

Fall 2003

- Programming in DrScheme and Java

Software Practice

Fall 2002

- Extreme programming in Visual C++

Computer Systems

Spring 2002

- Binary code analysis, cache optimization, and multi-processes management

**Yonsei University, Teaching Assistant****Seoul, Korea**

Digital Logic

Fall 1994

Computer Architecture

Spring 1995

**PUBLICATIONS**

- \* Matthew Probst, Jun Cheol Park, Ravin Abraham, and Sneha Kumar Kasera. SocialSwarm: Exploiting Distance in Social Networks for Collaborative Flash File Distribution. *The 18th IEEE International Conference on Network Protocols (ICNP)* 2010. **Acceptance Rate: 18.2% (36/198)**
- \* Jun Cheol Park and Sneha Kumar Kasera. Reduced Packet Probing (RPP) Multirate Adaptation For Multihop Ad Hoc Wireless Networks. *The 10th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WOWMOM)* 2009. **Acceptance Rate: 22.5% (36/160)**
- \* Jun Cheol Park, Sneha Kumar Kasera and Neal Patwari. On Cross Layer Multirate Adaptation For Multihop Wireless Networks Using Physical Capture. *The IEEE Global Communications Conference (GLOBECOM)* 2009. **Acceptance Rate: 34.8% (1104/3200)**
- \* Jun Cheol Park and Sneha Kumar Kasera. Securing Ad Hoc Wireless Networks Against Data Injection Attacks Using Firewalls. *IEEE Wireless Communications and Networking Conference (WCNC)* 2007.
- \* Jun Cheol Park and Sneha Kumar Kasera. Expected Data Rate: An Accurate High-Throughput Path Metric For Multi-Hop Wireless Routing. *IEEE Communications Society Conference on Sensor and Ad Hoc Communications and Networks (SECON)* 2005: **Acceptance Rate: 27.2% (55/203)**
- \* Jun Cheol Park and Sneha Kumar Kasera. Enhancing Cellular Multicast Performance Using Ad Hoc Networks. *IEEE Wireless Communications and Networking Conference (WCNC)* 2005

- \* Jun Cheol Park and Kiseok Lee. Parallel Simulation of Fluid Flow inside the Rotating Cylindrical Container on the Intel Paragon. *Proceedings of High Performance Computing Asia '97*, pp. 104-108, IEEE Computer Society Press, April 1997
- \* Jun Cheol Park, C.B. Hong, Sang Moon Lee, and S.M. Ahn. The Parallelization of CFS Code for Turbulent Flow Simulation around Ship Stern. *Proceedings of the Annual Spring Meeting, SNAK, Koje, 22-23*, pp. 192-195, April, 1999
- \* Kiseok Lee and Jun Cheol Park. Numerical Experiments of Closed Cylindrical Container with the Periodically Oscillating Walls. *Proceedings of the Korean Society of Mechanical Engineers*, pp. 451-456, September 1996
- \* Oh Young Kwon and Jun Cheol Park. Methods to Improve Data Locality Using Loop Tiling. *Proceedings of Parallel Processing System of Korea*, Vol.5, No. 2, Nov 1994

### **HONORS & AWARDS**

- \* First Place in Research Abstract & Poster Competition in School of Computing at University of Utah - *Reduced Packet Probing (RPP) Multirate Adaptation For Multihop Ad Hoc Wireless Networks* 2008
- \* Customer Value Award at Samsung Advanced Institute of Technology, Scalable Alpha Clustering System for High Performance Computing 1999
- \* Student Scholarship in Computer Science Department at Yonsei University 1993

### **REFERENCES**

Available upon request.