Young Jin Yu (Ph.D.)

Sr. Storage Engineer
Online Storage Engineering
Infrastructure & Development Operations
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Education

- Ph.D. in School of Computer Science & Engineering, Seoul National University, Aug. 2012.
- B.S. in School of Computer Science & Engineering, Seoul National University, Feb. 2006.

Research Interests

- Highly-available Internet-scale Object Storage System
  - Evaluation and Optimization
- Improving Storage Performance (sorted by date)
  - Analyzing Performance Problems in Linux & Solaris Stack in Cloud Storage
  - Optimizing Block I/O Subsystem for Fast Storage Devices
  - Optimizing Block-level Cache Layer for Slow Storage Devices
  - Optimizing Swap Subsystem with a new Swap-index Allocation Scheme
  - Optimizing the I/O Scheduler for NCQ-capable Storage Devices
- Improving File System Reliability
  - Implementing the Snapshot/Recovery Tool for DPC-tolerance for Commodity File systems
- Modeling the Characteristics of Storage Devices
  - Extracting Logical-to-Physical Mapping from HDD

Programming Experience

- C: Optimizing linux storage stack
- Python: Implementing the gateway for existing Amazon S3 applications to use other storage backend
- Python: Automating evaluations & report generations
- Python: Extracting and recovering file system metadata from a NTFS/ext2 partition
- Java: Optimizing the object storage system

Projects Experience

- Object Storage System, Cloud Storage and etc. (Confidential)

  Infrastructure Development and Operations, AOL
  Nov. 2012 ~ Current

- Implementation of PCM-based Storage System that Supports 200,000 IOPS for Peta-scale Computing

  Ministry of Knowledge Economy
  May. 2011 ~ Oct. 2012

- Implementation of Highly-Efficient & Highly-Reliable Block Device Cache

  Taejin Infotech
  Mar. 2010 ~ Aug. 2011.

- Applying Web 2.0 Technologies to Grid Services

  Korea Institute of Science and Technology Information
  Mar. 2008 ~ Nov. 2008.

- Implementation of Grid Services to Control Remote Device and Visualize Real-time Data

  U-City Project by Seoul Government
  Mar. 2007. ~ Nov. 2009.

- Implementation of Grid Services to Record and Replay Real-time Data

  Ministry of Construction & Transportation
  Mar. 2006. ~ Nov. 2006.

Publications

- Young Jin Yu, Dong In Shin, Woong Shin, Nae Young Song, Jae Woo Choi, Hyeong Seog Kim, Hyeonsang Eom and Heon Young Yeom, "**Optimizing the Block I/O Subsystem for Fast Storage Devices**", *ACM Transactions on Computer Systems, Vol. 32, No. 2, Article 6, Publication date: June 2014.*

- Jae Woo Choi, Dong In Shin, Young Jin Yu, Hyeonsang Eom and Heon Young Yeom, "**Towards High-Performance SAN with Fast Storage Devices**", *ACM Transactions on Storage, Vol. 10, No. 2, Article 5, Publication date: March 2014.*

- Dong In Shin, Young Jin Yu, Hyeong S. Kim, Jae Woo Choi, Do Yung Jung and Heon Young Yeom, "**Dynamic Interval Polling and Pipelined Post I/O Processing for Low-Latency Storage Class Memory**", *USENIX HotStorage'13*, June 24-28, 2013, San Jose, CA.

- Jae Woo Choi, Dong In Shin, Young Jin Yu, Hyeonsang Eom and Heon Young Yeom, "**SAN Optimization for High Performance Storage with RDMA Data Transfer**", *SC'12 7th Parallel Data Storage Workshop*, November 10-16, 2012, Salt Lake, UT.

- Nae Young Song, Young Jin Yu, Woong Shin, Hyeonsang Eom and Heon Young Yeom, "**Low-latency Memory-mapped I/O for Data-intensive Applications for Fast Storage Devices**", *SC'12 International Workshop on Data-Intensive Scalable Computing Systems (DISCS)*, November 10-16, 2012, Salt Lake, UT.

- Young Jin Yu, "**Optimizing Block I/O Subsystem for Fast Storage Devices**", Ph.D. Thesis, Aug. 2012.

- Young Jin Yu, Dong In Shin, Woong Shin, Nae Young Song, Hyeonsang Eom and Heon Y. Yeom, "**Exploiting Peak Device Throughput from Random Access Workload**", *USENIX HotStorage'12*, June 13-14, 2012, Boston, MA.

- Young Jin Yu, Dong In Shin, Hyeong Seog Kim, Hyeongsang Eom and Heon Y. Yeom, "**Informed Swap System for Better Thrashing**", *USENIX ATC 2011 Poster Session*, Portland.

- Hyeong Seog Kim, Dong In Shin, Young Jin Yu, Hyeonsang Eom and Heon Y. Yeom, "**DASCA: Data Aware Scaling Down to Provide Power Proportionality for Distributed Data Processing Frameworks**", *Green Computing Conference and Workshops (IGCC), July 2011.*

- Dong In Shin, Young Jin Yu, Hyeong Seog Kim, Hyeonsang Eom and Heon Y. Yeom, "**Request Bridging and Interleaving: Improving the Performance of Small Synchronous Updates under Seek-Optimizing Disk Subsystems**", *ACM Transactions on Storage, Vol. 7, No. 2, Article 4, Publication date: July 2011.*

- Young Jin Yu, Dong In Shin, Hyeong Seog Kim, Hyeonsang Eom and Heon Y. Yeom, **"Backup Metadata As Data: DPC-Tolerance to Commodity File Systems"**, *Journal of Information Science and Engineering (JISE)*, pp. 1193-1218, Vol. 27, No. 5 (July 2011).

- Hyeong Seog Kim, Dong In Shin, Young Jin Yu, Hyeonsang Eom and Heon Y. Yeom, "**Systematic Approach of Using Power Save Mode for Cloud Data Processing Services**", *International Journal of AdHoc and Ubiquitous Computing (IJAHUC), Vol. 5, No. 8, 2010.*

- Young Jin Yu, Dong In Shin, and Heon Y. Yeom, **"NCQ vs. I/O Scheduler: Preventing Unexpected Misbehaviors"**, *ACM Transactions on Storage, Vol. 6, No. 1, Article 2, Publication date: March 2010.*

- Hyeong Seog Kim, Dong In Shin, Young Jin Yu, Hyeonsang Eom and Heon Y. Yeom, **"Towards Energy Proportional Cloud for Data Processing Frameworks"**, *USENIX sustainIT'10, San Jose, CA.*

- Dong In Shin, Young Jin Yu, and Heon Y. Yeom, **"Shedding Light in the Black-Box : Structural Modeling of Modern Disk Drives"**, *15th Annual Meeting of the IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems, Istanbul, Turkey.*

- Hyuck Han, Hyungsoo Jung, Jai Wug Kim, Jongpil Lee, Young Jin Yu, Heon Y. Yeom, **"SHIELD: A Fault-Tolerant MPI for an Infiniband Cluster"**, *The 2006 International Conference on High Performance Computing and Communications(HPCC'06), September 13-15, 2006, Munich, Germany*

Patents

- "Method, System and Computer-Readable Recording Medium for Performance Data Input and Output via Multiple Path", Jan/2012.
- "Method, System and Computer-Readable Recording Medium for Searching Position of Metadata", Jan/2012.
- "NCQ and Computing Device", Aug/2010.

(updated on Jul/10/2014)