

Beomseok Nam

CONTACT INFORMATION	School of Electrical and Computer Engineering Ulsan National Institute of Science and Technology (UNIST) 106-dong 601-5, UNIST-gil 50, Eonyang-eup, Ulju-gun Ulsan, 44919, Korea	<i>Phone:</i> +1-82-52-217-2123 <i>E-mail:</i> bsnam@unist.ac.kr <i>http://</i> dicl.unist.ac.kr
PERSONAL INFORMATION	Associate Professor, UNIST. School of Electrical and Computer Engineering, Appointed on August 1st, 2010.	
RESEARCH AREAS	Data Intensive Computing Distributed and Parallel Computing Database Systems Storage Systems	
EDUCATION	University of Maryland , College Park, MD USA Ph.D. in Computer Science, May. 2007 <ul style="list-style-type: none">• Advisor: Dr. Alan Sussman• Thesis Title: "Distributed Multidimensional Indexing for Scientific Data Analysis Applications" Seoul National University , Seoul, Korea M.S. in Computer Science, Feb. 1999 B.S. in Computer Science and Statistics, Feb. 1997	
EMPLOYMENT	UNIST (Ulsan National Institute of Science and Technology) , Ulsan, Korea School of Electrical and Computer Engineering <i>Associate Professor</i> <i>Assistant Professor</i> <i>Computer Science and Engineering Track Head</i>	<i>Mar. 2015 - Present</i> <i>Aug. 2010 - Feb. 2015</i> <i>Dec. 2011 - Feb. 2014</i>
	Oracle , Redwood Shores, CA, USA <i>Senior Member of Technical Staff at Server Technologies Division</i>	<i>Oct. 2007 - Jul. 2010</i>
	University of Maryland , College Park, MD, USA <i>Faculty Research Associate</i> <i>Graduate Research Assistant</i> <i>Graduate Teaching Assistant</i>	<i>Jun. 2007 - Sep. 2007</i> <i>Feb. 2002 - May. 2007</i> <i>Aug. 2000 - Dec. 2001</i>
	LG Information and Communications , Seoul, Korea <i>R&D Management Team</i>	<i>May 1999 - May 2000</i>
	Seoul National University , Seoul, Korea <i>Graduate Research Assistant</i>	<i>Mar. 1997 - Feb. 1999</i>
HONORS AND AWARDS	Best Student Paper Award - IEEE CLOUD 2017 Best Paper Award - Grid 2006	

TECHNICAL
SERVICE

Reviewing Activities

PC member, Non-Volatile Memory Systems and Applications Symposium (NVMSA), 2017
PC member, USENIX HotStorage, 2016
Publication Chair, Non-Volatile Memory Systems and Applications Symposium (NVMSA), 2016
PC member (poster), ACM/IEEE Intl Conf on High Performance Computing, Networking, Storage and Analysis (SC), 2013-2014
PC member, IEEE Intl Conf on Parallel and Distributed Systems (ICPADS), 2013-2015
PC member, IEEE Workshop on Autonomic Management of Grid and Cloud Computing (AMGCC), 2013-2017
PC member, IEEE Intl Conf on Service-Oriented Computing and Applications (SOCA), 2012-2013
PC member, IEEE Intl Conf on High Performance Computing (HiPC), 2012-2013

PUBLICATIONS

Underlined authors are UNIST students I advised.

Dotted-underlined authors are UNIST students I co-advised with other professors.

Under Submission

Journal Publications

1. [TOS] Wook-Hee Kim, Jihye Seo, Jinwoong Kim, and **Beomseok Nam** “clfB-tree: Cacheline Friendly Persistent B-tree for NVRAM”, To appear in ACM Transactions on Storage, Special issue on NVM and Storage.
2. [JPDC] Jinwoong Kim and **Beomseok Nam** “Co-Processing Heterogeneous Parallel Index for Multi-Dimensional Datasets”, Journal of Parallel and Distributed Computing, Vol. 113, pp 195-203, Elsevier, Mar. 2018.
3. [JPDC] Youngmoon Eom, Deukyeon Hwang, Junyong Lee, Jonghwan Moon, Minho Shin, and **Beomseok Nam (corresponding author)** “EM-KDE: A Locality-Aware Job Scheduling Policy with Distributed Semantic Caches”, Journal of Parallel and Distributed Computing, Vol. 83, pp 119-132, Elsevier, Sep. 2015.
4. [CLUSTER] Youngmoon Eom, Jinwoong Kim, and **Beomseok Nam (corresponding author)**, “Multi-dimensional Multiple Query Scheduling with Distributed Semantic Caching Framework”, Cluster Computing, Vol. 18, No. 3, pp 1141-1156, Springer, 2015.
5. [TPDS] Jinwoong Kim, Won-Ki Jeong, and **Beomseok Nam (corresponding author)** ”Exploiting Massive Parallelism for Indexing Multi-dimensional Datasets on the GPU”, IEEE Transactions on Parallel and Distributed Systems, vol. 26, No. 8, pp 2258-2271, Aug. 2015.
6. [CLUSTER] Jik-Soo Kim, **Beomseok Nam**, and Alan Sussman “Scalable and Effective Peer-to-Peer Desktop Grid System”, Cluster Computing, Vol. 17, No. 4, pp 1185-1201, Springer, 2014.
7. [JPDC] Jinwoong Kim, **Beomseok Nam (corresponding author)**, “Parallel Multi-dimensional Range Query Processing with R-Trees on GPU”, Journal of Parallel and Distributed Computing, Volume 73, Issue 8, 1195-1207, Elsevier, Aug, 2013.
8. [DAPD] **Beomseok Nam**, Deukyeon Hwang, Jinwoong Kim, and Minho Shin, “High-Throughput Distributed Query Scheduling with EMA-based Statistical Prediction”, Special Issue on Data Intensive e-Science, Distributed and Parallel Databases, Volume 30, issue 5-6, pp 401-414, Springer, 2012.
9. [JSC] **Beomseok Nam (corresponding author)** and Alan Sussman, “Analyzing Design Choices for Distributed Multidimensional Indexing”, The Journal of Supercomputing, Springer, Volume 59, Issue 3, 1552-1576, Jan, 2012.

10. [JPDC] **Beomseok Nam (corresponding author)**, Minho Shin, Henrique Andrade, and Alan Sussman, “Multiple Query Scheduling for Distributed Semantic Caches”, *Journal of Parallel and Distributed Computing*, Volume 70, Issue 5, 598-611, Elsevier, May, 2010.
11. [FGCS] Jik-Soo Kim, **Beomseok Nam**, Peter Keleher, Michael Marsh, Bobby Bhattacharjee and Alan Sussman, “Trade-offs in Matching Jobs and Balancing Load for Distributed Desktop Grids”, *Future Generation Computer Systems*, Elsevier, Volume 24, Issue 5, pp 415-424, 2008.

Conference Publications

1. [IEEE CLUSTER] Vicente A. B. Sanchez, Wonbae Kim, Youngmoon Eom, Kibeom Jin, Moohyeon Nam, Deukyeon Hwang, Jik-Soo Kim, and **Beomseok Nam** “EclipseMR: Distributed and Parallel Task Processing with Consistent Hashing”, To appear 19th IEEE International Conference on Cluster Computing (IEEE CLUSTER), Honolulu, Hawaii, Sep. 2017.
2. [CLOUD] Wonbae Kim, Young-ri Choi, **Beomseok Nam** “Coalescing HDFS Blocks to Avoid Recurring YARN Container Overhead”, 10th IEEE International Conference on Cloud Computing (IEEE CLOUD), Honolulu, Hawaii, June. 2017, **Best Student Paper Award**.
3. [CCGRID] Wonbae Kim, Young-ri Choi, **Beomseok Nam** “Mitigating YARN Container Overhead with Input Splits”, (short paper) 17th International Symposium on Cluster, Cloud, and Grid Computing (CCGrid), Madrid, Spain, May. 2017.
4. [ASPLOS] Jihye Seo, Wook-Hee Kim, Woongki Baek, **Beomseok Nam**, and Sam H. Noh, “Failure-Atomic Slotted Paging for Persistent Memory”, 22nd International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '17), Xi'an, China, Apr. 2017.
5. [USENIX FAST] Se Kwon Lee, K. Hyun Lim, Hyunsub Song, **Beomseok Nam**, and Sam H. Noh, “WORT: Write Optimal Radix Tree for Persistent Memory Storage Systems”, 15th USENIX Conference on File and Storage Technologies (USENIX FAST), Santa Clara, CA, Feb. 2017.
6. [ICPP] Moohyeon Nam, Jinwoong Kim, and **Beomseok Nam**, “Parallel Tree Traversal for Nearest Neighbor Query on the GPU”, 45th International Conference on Parallel Processing (ICPP), Philadelphia, PA, Aug. 2016.
7. [CCGRID] Jaewon Kwak, Eunji Hwang, Tae-kyung Yoo, **Beomseok Nam**, and Young-ri Choi, “In-memory Caching Orchestration for Hadoop”, (short paper) 16th International Symposium on Cluster, Cloud, and Grid Computing (CCGrid), Cartagena, Columbia, May. 2016.
8. [ASPLOS] Wook-Hee Kim, Jinwoong Kim, Woongki Baek, **Beomseok Nam**, and Youjip Won, “NVWAL: Exploiting NVRAM in Write-Ahead Logging”, 21st International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Atlanta, GA, Apr. 2016.
9. [USENIX ATC] Wongun Lee, Keonwoo Lee, Hankeun Son, Wook-Hee Kim, **Beomseok Nam**, Youjip Won, “WALDIO: Eliminating the Filesystem Journaling in Resolving the Journaling of Journal Anomaly”, USENIX Annual Technical Conference (USENIX ATC), Santa Clara, CA, Jun. 2015.
10. [HiPC] Youngmoon Eom, Jinwoong Kim, Deukyeon Hwang, Jaewon Kwak, Minho Shin, **Beomseok Nam** “Improving Multi-dimensional Query Processing with Data Migration in Distributed Cache Infrastructure”, 21st IEEE International Conference on High Performance Computing (HiPC), Goa, India, Dec. 2014.

11. Youngmoon Eom, Jonghwan Moon, Jinwoong Kim, **Beomseok Nam**, “Collaborative Multi-dimensional Dataset Processing with Distributed Cache Infrastructure in the Cloud”, 2nd International Workshop on Autonomic Management of Grid and Cloud Computing (AMGCC) (in conjunction with IEEE CAC 2014), London, UK, Sep. 2014.
12. [USENIX FAST] Wook-Hee Kim, **Beomseok Nam**, Dongil Park, and Youjip Won “Resolving Journaling of Journal Anomaly in Android I/O: Multi-Version B-tree with Lazy Split”, 12th USENIX Conference on File and Storage Technologies (USENIX FAST), Santa Clara, CA, Feb. 2014.
13. Jik-Soo Kim, **Beomseok Nam**, and Alan Sussman “Autonomic Load Balancing Mechanisms in the P2P Desktop Grid”, 1st International Workshop on Autonomic Management of Grid and Cloud Computing (in conjunction with ACM CAC 2013), Aug 2013.
14. [FGC] Jinwoong Kim, Sumin Hong, and **Beomseok Nam** “A Performance Study of Traversing Spatial Indexing Structures in Parallel on GPU”, 3rd International Workshop on Frontier of GPU Computing, in conjunction with HPCC 2012, Jun 2012.
15. [JSSPP] Youngmoon Eom, Junyong Lee, Alan Sussman, and **Beomseok Nam** “DEMB: Cache-Aware Scheduling for Distributed Query Processing”, 16th Workshop on Job Scheduling Strategies for Parallel Processing (JSSPP), in conjunction with IPDPS 2012, May 2012.
16. [GRID] Jik-Soo Kim, **Beomseok Nam**, Michael Marsh, Peter Keleher, Bobby Bhattacharjee, Derek Richardson, Dennis Wellnitz and Alan Sussman, “Integrating Categorical Resource Types into a P2P Desktop Grid System”, 9th IEEE/ACM International Conference on Grid Computing (Grid), September 2008.
17. Michael Marsh, Jik-Soo Kim, **Beomseok Nam**, Jaehwan Lee, San Ratanasanya, Bobby Bhattacharjee, Peter Keleher, Derek Richardson, Dennis Wellnitz and Alan Sussman, “Matchmaking and Implementation Issues for a P2P Desktop Grid”, 2008 National Science Foundation Next Generation Software Workshop (NSF NGS) in conjunction with IPDPS 2008, April 2008.
18. Hyungsoo Kim, Minho Shin, **Beomseok Nam**, and David J. Lovell. “An Integrated Transportation and Communication Simulation Framework for Vehicular Ad Hoc Network Applications”. The 87th Annual Meeting of the Transportation Research Board (TRB), January 13-17, Washington D.C.
19. Jik-Soo Kim, **Beomseok Nam**, Michael Marsh, Peter Keleher, Bobby Bhattacharjee, Derek Richardson, Dennis Wellnitz and Alan Sussman, “Creating a Robust Desktop Grid using Peer-to-Peer Services”, The National Science Foundation Next Generation Software Workshop (NSF NGS) in conjunction with IPDPS 2007, Long Beach, CA, 2007
20. [SC] **Beomseok Nam**, Henrique Andrade, and Alan Sussman, “Multiple Range Query Optimization with Distributed Cache Indexing”, Supercomputing (SC), Tampa, FL, Nov. 2006.
21. [GRID] Jik-Soo Kim, **Beomseok Nam**, Peter Keleher, Michael Marsh, Bobby Bhattacharjee, and Alan Sussman, “Resource Discovery Techniques in Distributed Desktop Grid Environments”, 7th IEEE/ACM International Conference on Grid Computing (Grid), Barcelona, Spain, Sep. 2006, **Best Paper Award**.
22. [IPDPS] **Beomseok Nam** and Alan Sussman, “DiST: Fully Decentralized Indexing for Querying Distributed Multidimensional Datasets”, 20th IEEE International Parallel and Distributed Processing Symposium (IPDPS), Rhodes Island, Greece, Apr. 2006.
23. [CCGRID] **Beomseok Nam** and Alan Sussman, “Spatial Indexing of Distributed Multidimensional Datasets”, 5th IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), Cardiff, UK, May. 2005.

24. [SSDBM] **Beomseok Nam** and Alan Sussman, “A Comparative Study of Spatial Indexing Techniques for Multidimensional Scientific Datasets”, 16th International Conference on Scientific and Statistical Database Management (SSDBM), Santorini, Greece, Jun. 2004.
25. [CCGRID] **Beomseok Nam** and Alan Sussman, “Improving Access to Multi-dimensional Self-describing Scientific Dataset”, 3rd IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), Tokyo, Japan, May. 2003.
26. **Beomseok Nam** and Kern Koh, “Periodic Polling for Web Cache Consistency”, WebNet World Conference of the WWW, Internet, and Intranet (WebNet), Honolulu, HI, Oct. 1999.

Technical Reports and Posters

1. Wook-Hee Kim, Jihye Seo, Youjip Won, and **Beomseok Nam** “clfB-tree: Cacheline Friendly Persistent B-tree”, USENIX Annual Technical Conference (USENIX ATC), Poster, Denver, CO, Jun. 2016.
2. Jinwoong Kim, Schoon Lee, Joong-Youn Lee, **Beomseok Nam**, and Min Ah Kim, “GLOVE: An Interactive Visualization Service Framework with Multi-Dimensional Indexing on the GPU”, 27th International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Poster, Austin, TX, Nov. 2015.
3. Wook-Hee Kim (Supervisor: **Beomseok Nam**), “DEMA: Dynamic Clustering of Spatio-Temporal Dataset to Improve Indexing Performance”, SIGMOD 2011 Undergraduate Poster Competition, Athens, Greece, May. 2011.
4. **Beomseok Nam** and Alan Sussman, “Scalable Indexing Schemes for Distributed Data Intensive Applications”, University of Maryland Technical Report CS-TR-4832 and UMIACS-TR-2006-48
5. **Beomseok Nam** and Alan Sussman, “Indexing Cached Multidimensional Objects in Large Main Memory Systems”, University of Maryland Technical Report CS-TR-4795 and UMIACS-TR-2006-16.
6. **Beomseok Nam** and Alan Sussman, “GMIT: A Tool for Indexing Self-describing Scientific Datasets”, 15th International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Poster, Phoenix, AZ, Nov. 2003.

Other Professional Presentations

1. “Exploiting NVRAM for Database Buffer Caching and Logging”, CSS (Computer Systems Society) Winter Workshop, Yongpyung, Korea, Jan. 2017.
2. “Cache-centric Task Scheduling for Big Data Processing”, KCC 2016, Jeju, Korea, Aug. 2016.
3. “NVWAL: Exploiting NVRAM in Write-Ahead Logging”, Invited Talk in Workshop on Operating System Support for Next Generation Large Scale NVRAM (NVRAMOS), Jeju, Korea, Oct. 2016.
4. “Supercomputing and Data Analytics”, Naver DEVIEW 2015, Seoul, Korea, Sep. 2015.
5. “Resolving Journaling of Journal Anomaly via Weaving Recovery Information into DB Page”, Invited Talk in Workshop on Operating System Support for Next Generation Large Scale NVRAM (NVRAMOS), Jeju, Korea, Oct. 2014.
6. “Multi-dimensional Range Query Processing on the GPU”, Invited Talk in The 2013 International Workshop on Computational Science and Engineering (IWCSE 2013), Taipei, Taiwan, Oct. 2013.
7. KIISE (Korean Institute of Information Scientists and Engineers), SIG on High Performance Computing, Winter Workshop, Yongpyung, Korea, Jan 2013.

8. KIISE(Korean Institute of Information Scientists and Engineers), SIG on Computer Systems, New comer session in Winter Workshop, Yongpyung, Korea, Jan 2011.

CONTRACTS AND GRANTS

1. Development of Machine Learning Framework for Peta Flops Scale, NRF, KRW 2,550,000,000, Nov. 2016 - Jul. 2021.
2. NewSQL Platform on DHT-based MapReduce Framework, Samsung Research Funding and Incubation Center for Future Technology, KRW 400,000,000, Jun. 2015 - May. 2018.
3. High Performance Big Data Analytics Platform Performance Acceleration Technologies Development, IITP, KRW 12,000,000,000, Jun. 2015 - May. 2019.
4. Distributed and Parallel Data Processing Framework with Distributed Semantic Caches, NRF, KRW 97,500,000, Nov. 2014 - Apr. 2017.
5. Embedded System Software for New-memory Based Smart Device, Korean Ministry of Knowledge Economy, KRW 350,000,000, Jun. 2012 - May 2017
6. CloudMarket: A resource scheduler for Cloud market place, Korean Ministry of Education, Science, and Technology, KRW 150,000,000, May 2011 - Apr. 2014

TEACHING

2017

ITP107: Engineering Programming I (Spring)
CSE421: Introduction to Database Systems (Spring)
CSE412/ECE525: Parallel Computing (Fall)

2016

ITP117: Engineering Programming II (Fall)
ITP107: Engineering Programming I (Spring)
CSE421: Introduction to Database Systems (Spring)

2015

ECE517: Distributed Systems (Spring)
CSE421: Introduction to Database Systems (Spring)
CSE241: Object Oriented Programming (Spring)

2014

CSE517: Distributed Systems (Fall)
CSE421: Introduction to Database Systems (Spring)
CSE202: Object Oriented Programming (Spring)

2013

CSE321: Introduction to Database Systems (Winter 2013~'14)
ECE525: Parallel Computing (with prof. Woongki Baek) (Winter)
CSE202: Advanced Programming (Fall)
ECE720: Computational Geometry (Fall)

2012

CSE321: Introduction to Database Systems (Winter 2012~'13)
CSE716: Advanced Database Management Systems (Fall)
CSE202: Advanced Programming (Spring)

2011

CSE211: Introduction to Programming Language (Fall)
CSE321: Introduction to Database Systems (Fall)

ITP117: Engineering Programming Lab (Spring)
ECE716: Distributed Systems (Spring)

2010

ITP108: Business Programming (Fall)

ADVISING

Ph.D. Thesis

Jinwoong Kim (Mar. 2011 - Aug. 2017) - First landing: NAVER
Wook-Hee Kim (Mar. 2013 - Present)
Moohyeon Nam (Mar. 2013 - Present)
Wonbae Kim (Mar. 2017 - Present)

M.S. Thesis

Vicente A. B. Sanchez (Mar. 2017 - Present)
Deukyeon Hwang (Mar. 2017 - Present)
Jihye Seo (Mar. 2016 - Present)
Wonbae Kim (Mar. 2014 - Feb. 2017)
Kibeom Jin (Mar. 2015 - Aug. 2017)
Deokgyu Jeong (Mar. 2015 - Feb. 2017)
Byungeun Park (Mar. 2015 - Feb. 2017)
Youngmoon Eom (Mar. 2013 - Feb. 2015)

M.S. and Ph.D. Committee

Eunji Hwang, Ph.D. candidate
Jaewon Kwak, M.S. 2017
Youngjoo Wu, M.S. 2012
Toan Mai, MS 2013

International Student Competition Coach

2014: Asia Supercomputing Challenge, China, (Finalist Award)
2014: ISC Student Cluster Challenge, Germany, (Finalist Award)
2013: Asia Supercomputing Challenge, China, (Finalist Award)

I certify this CV is accurate and complete – December 17, 2017