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PILHO KIM

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EDUCATIONAL BACKGROUND

Georgia Institute of Technology, Atlanta, GA, USA — 2009
Electrical and Computer Engineering, Ph.D.

Pohang University of Science and Technology, Pohang, South Korea — 1996
Electronic and Electrical Engineering, MS.

Pusan National University, Pusan, South Korea — 1994
Electronic Engineering, BS.

EXPERIENCES

Georgia Institute of Technology, Atlanta, GA — **Research Assistant** — **2002-2009**
Electrical and Computer Engineering

♦ Invent an extended SQL language, EML, to extend RDBMS to support unstructured query, semantic expansion, unified object namespaces, transactional temporal query, ranking ordering and path query.
♦ Develop the E-model database system to support heterogenous data models for information chronicling. It achieved 224 times faster performance than XML and 17 times faster than RDBMS for the unstructured query.
♦ US DOT traffic sign detection algorithm that achieved 0% false-negative and 20% false-positive error.

IBM T.J. Watson Research Center, Hawthorne, NY — **Research Intern** — **Summer 2004**
Pervasive Computing Solutions

♦ Implement personal information chronicling solutions for IBM enterprise environments.

Hewlett-Packard Labs, 1501 Page Mill Road, Palo Alto, CA — **Visiting Researcher** — **June 2003**
Imaging Systems Laboratory

♦ Propose the event-based three-tier information processing architecture for experiential meeting system (EMS.)
♦ Set up the three-year research collaboration on the EMS project.

Research Institute of Industrial Science and Technology, Pohang, South Korea — **Research Staff Member** — **1996-2002**
Facility & Automation Research Center

♦ Contribute to 22 industrial enterprise data management and automation projects as a principle/co-PI researcher.
♦ Develop engineering software (selected): (1) Roughing mill plant design software (1997-2000): 0.25 million lines MFC/C++, (2) Free forging mill scheduler (2001-2002): 0.15 million lines MFC/C++.
♦ Awarded two-year early promotion for high evaluations from customers.

Pohang University of Science and Technology, Pohang, South Korea — **Research Assistant** — **1994-1996**
Electronic and Electrical Engineering

♦ Hierarchical mean field algorithm for stereo vision.
♦ Real-time moving slab (44 mile/hour) warp measuring computer vision system for POSCO #2 thick-plate plant.
♦ Slab 3D size meter using laser range finders and computer vision for POSCO #1 hot-plate plant.

SKILLS

Database (2002-2009): Hybrid graph database system implementation, SQL stored procedures and functions programming, SQL language extension (EML).

Multimedia processing (1994-2009): Real-time video signal acquisition and analysis, color image segmentation, traffic sign detection and type classification, stereo vision.

Enterprise data management and Industrial automation (1994–2002): Real-time operation data monitoring

hardware and software system, range and size meter using laser and computer vision, on-line hot slab warp measuring computer vision system.

MFC & C/C++ programming (1994-2009): Personal information chronicling tools, plant design engineering software, cost optimization analysis tools.

Web programming (2002-2009): Multimedia database application using MySQL, PHP and AJAX on Apache.

RESEARCH AND PUBLICATION

Ph.D. Thesis: "E-model: Event-based graph data model theory and implementation," Completion Date: July 2009 Advisor: Dr. Vijay Madisetti, Georgia Institute of Technology, Dr. Ramesh Jain, University of California, Irvine.

M.S. Thesis: "Hierarchical mean field algorithms for binocular stereo vision," Completion Date: Feb. 1996 Advisor: Dr. Hong Jeong, Pohang University of Science and Technology, South Korea.

Journal

1. Pilho Kim and Vijay Madisetti, "EML: An extended SQL language for the E-model," submitted to the Multimedia System Journal for review, 2009.
2. Pilho Kim and Vijay Madisetti, "E-model for generic graph database implementation," submitted to the IEEE Transactions on Knowledge and Data Engineering for review, 2009.
3. James Tsai, Pilho Kim and Zhaohua Wang, "Generalized traffic sign detection model for developing a sign inventory," Journal of Computing in Civil Engineering, vol. 23, no. 5, pp. 266-276, 2009.
4. Pilho Kim, Myungsik Chun, Joonjeong Yi, and Younghoon Moon, "Pass schedule algorithms for hot open die forging," Journal of Materials Processing Technology, vol. 130-131, pp. 516-523, 2002.
5. Wanki Hong, Pilho Kim, Younghoon Moon, and Jounjeong Yi, "Hot strip width control method by using looper tension measuring system in finishing mill," Journal of Materials Processing Technology, vol. 111, pp. 74-78, 2001.
6. Pilho Kim, Myungsik Chun, and Younghoon Moon, "Development of process design software in roughing mill," RIST Journal of R&D, vol. 14, pp. 342-347, 2000.
7. Pilho Kim, Myungsik Chun, and Younghoon Moon, and Joonjeong Yi, "Determination of carbon equivalent equation by using neural network for roll force prediction in hot strip mill," Journal of the Korean Society for Technology of Plasticity, vol. 6, no. 6, pp. 482-488,1997.

Conference and workshop

1. Pilho Kim, and Ramesh Jain, "Category-based functional information modeling for eChronicles," in Proc. of the IEEE Workshop on Electronic Chronicles, pp. 17-24, 2006.
2. Pilho Kim, Ullas Gargi, and Ramesh Jain, "Event-based multimedia chronicling systems," in Proc. of the 2nd ACM workshop on Capture, Archival and Retrieval of Personal Experiences, Hilton, Singapore, pp. 1-12, 2005.
3. Pilho Kim and Ramesh Jain, "Heterogeneous media events processing systems," in Proc. of the ACM SIGMM workshop on Effective Telepresence, New York, NY, USA, pp. 52-54, 2004.
4. Pilho Kim, Mark Podlaseck, and Gopal Pingali, "Personal chronicling tools for enhancing information archival and collaboration in enterprises," in Proc. of the 1st ACM workshop on continuous archival and retrieval of personal experiences, pp. 55-65, 2004.
5. Amarnath Gupta, Bin Liu, Pilho Kim, and Ramesh Jain, "Using stream semantics for continuous queries in media stream processors," in Proc. of the 20th International Conference on Data Engineering: IEEE Computer Society, 2004.
6. Rahul Singh, Zhao Li, Pilho Kim, Derik Pack, and Ramesh Jain, "Event-based modeling and processing of digital media," in Proc. of the 1st International Workshop on Computer Vision meets Databases, Maison de la Chimie, Paris, France, pp. 19-26, 2004.
7. Ramesh Jain and Pilho Kim, "Experiential meeting system," in Proc. of the ACM SIGMM workshop on Experiential Telepresence, Berkeley, California, USA, pp. 1-12, 2003.
8. Pilho Kim, Myungsik Chun, Joonjeong Yi, and Younghoon Moon, "Development of pass schedule design software in forging process," in Proc. of the International Conference on Advanced Forming and Die manufacturing Technology, Pusan, Korea, pp., 2002.
9. Pilho Kim, Myoungsik Chun, and Joonjeong Yi, "Rough mill process schedule and process designing algorithms and implementation," in Proc. of the 4th Rolling Symposium, Korean Society for Technology of Plasticity, Pohang, Korea, pp. 789-797, 2001.
10. Wankee Hong, Pilho Kim, Joonjeong Yi, and Younghoon Moon, "Development of looper tension meter in finishing mill for intelligent hot strip width control," in Proc. of the 3rd Rolling Symposium, Korean Society for Technology of Plasticity, pp. 423-428, 1999.
11. Wankee Hong, Pilho Kim, Joonjeong Yi, and Younghoon Moon, "Looper tension measuring system for hot strip width control in finishing mill," in Proc. of the International Conference on Advanced Forming and Die manufacturing Technology, pp. 303-309, 1999.

12. Pilho Kim, Younghoon Moon, and Joonjeong Yi, “Precise roughing mill edger roll gap measuring system,” in Proc. of the 9th POSCO Advanced Technology Conference 9th, Pohang, Korea, pp., 1997.
13. Pilho Kim, Myungsik Chun, Younghoon Moon, and Joonjeong Yi, “Determination of carbon equivalent equation by using neural network for roll force prediction in hot strip mill,” in Proc. of the Intelligent processing and manufacturing of materials, Gold Coast, Australia, pp. 303-309, 1997.
14. Pilho Kim and Hong Jeong, “Development of slab width measuring sensor and communication systems,” in Proc. of the 2nd Rolling Symposium, Korean Society for Technology of Plasticity, pp. 256-261, 1996.
15. Younghoon Moon, Pilho Kim, and Joonjeong Yi, “Development of refining model and set-up simulator for the accurate roll gap set-up in the hot strip finishing mill,” in Proc. of the 2nd Rolling Symposium, Korean Society for Technology of Plasticity, pp. 295-303, 1996.
16. Pilho Kim and Hong Jeong, “MRF binocular stereo vision using pyramid image sequence,” in Proc. of the IEEK Conference, Seoul, Korea, pp. 881-884, 1995.

Patent Granted

1. Pilho Kim and Jaechul Park, “Hot free forging pass schedule design,” KR-10-0431598, 4 May 2004.
2. Pilho Kim and Myungsik Chun, “Underwater ultrasonic range sensor using neural networks,” KR-10-0399236, 9 September 2003.
3. Pilho Kim and Joonjeong Yi, “Slab camber measuring image processing system using hierarchical image sequences,” KR-10-0381099, 8 April 2003.
4. Pilho Kim, “Slab camber measuring image processing system using color features of image sequences,” KR-10-0381098, 8 April 2003.
5. Wankee Hong, Pilho Kim, and Joonjeong Yi, “Material tension meter for finishing mill,” KR-10-0368250, 3 January 2003.
6. Pilho Kim and Joonjeong Yi, “Edger roll gap meter using ultrasonic sensor,” KR-10-0370566, 17 January 2003.
7. Pilho Kim, Yongkwon Kim, and Younghoon Moon, “Precise clamping device for full-length tension run-out table transporting system,” KR-20-0260920, 4 January 2002.
8. Younghoon Moon, Pilho Kim, and Joonjeong Yi, “Automatic edger roll gap distance meter in hot rolling plants,” KR-10-0326682, 19 February 2002.
9. Pilho Kim, Younghoon Moon, and Joonjeong YI, “Telescopic automatic edger roll gap meter,” KR-10-0306590, 10 August 2001.
10. Wankee Hong, Myungsik Chun, and Pilho Kim, “Hot coil slipping protection system in hot roll plants,” KR-10-0293191, 2 April 2001.
11. Pilho Kim, Younghoon Moon, and Joonjeong Yi, “Automatic edger roll gap meter using air pressure,” KR-10-0306591, 10 August 2001.
12. Wankee Hong, Pilho Kim, and Yongkwon Kim, “Automatic coil-ends clamping mode changing methods for run-out table in full-length tension,” KR-10-0293192, 2 April 2001.
13. Hong Jeong, Pilho Kim, and Taeho Kim, “Slab size meter using laser range finder,” KR-10-0270076, 27 July 2000.
14. Pilho Kim, Younghoon Moon, and Joonjeong Yi, “Roughing mill automatic edger roll gap distance meter,” KR-10-0265426, 14 June 2000.
15. Taeho Kim and Pilho Kim, “Laser hot slab width meter and its method,” KR-10-0270123, 27 July 2000.
16. Pilho Kim, Younghoon Moon, and Joonjeong Yi, “Automatic edger roll gap meter using the rotating arm,” KR-20-0207198, 6 October 2000.
17. Pilho Kim, “Atypical slab width meter,” KR-10-2000-0051995, 4 September 2000.

RESEARCH HONORS AND AWARDS

- Rotary International, Multi-year ambassadorial scholarship award, USA, 2002.
- National study abroad program award, Institute of Information Technology Advancement, Ministry of Information and Communication, South Korea, 2002.
- POSCO, Advanced technology award, South Korea, 1996.
- Pusan national university, Summa cum laude award, South Korea, 1994.

PROFESSIONAL ACTIVITIES

- Journal reviewer: IEEE Transactions on Multimedia, 2005-present.
- Teaching assistant: Electronic circuit system experiments, Pohang Univ. of Sci. and Tech., South Korea, 1994.
- Organization volunteer: International Conference on Data Engineering, April 2006, Atlanta, GA, USA.

** References available upon request.*