

# Dae-Ki Kang

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## Job Objective:

Seeking a full-time researcher position, being interested and specialized in researching, designing, specifying or implementing innovative applications with machine learning, data mining, bio-informatics, intrusion detection, Web based application, computer vision and software engineering expertise.

## Summary of Qualifications:

Skilled in the research and development of data mining / text mining, machine learning, bio-informatics, intrusion detection, XML software development, Web-based information retrieval system, Internet shopping agent, merchant server, and computer vision system.

Five-year machine learning / artificial intelligence research experience and three-year software engineering teaching experience in current Ph D program, two-year industrial data mining / text mining and XML server system experience in Bay area high-tech startup companies, five-year computer vision / machine vision and information retrieval research experience in Korean national research institute, and two-year computer vision experience in past Master of Science degree program.

## Education:

- 8/2001 - present : PhD student in computer science, Iowa State University, Ames, Iowa, USA  
Supported on a research and teaching assistantship funded by the ISU Computer Science Department  
Prelim proposal under Prof. V. Honavar "Abstraction, Aggregation and Recursion for Generating Accurate and Simple Classifiers"
- 3/1992 - 2/1994 : M.S. degree majored in 3-D human face recognition in computer science, Sogang University, Seoul  
M.S. Thesis under Prof. K-W Oh: "A study on 3-D Human Face Recognition"
- 3/1988 - 2/1992 : B.S. degree in computer science & engineering in Hanyang University, Ansan

## Publications:

### International Journals:

1. J. Zhang, D.-K. Kang, A. Silvescu and V. Honavar, "Learning Accurate and Concise Naive Bayes Classifiers from Attribute Value Taxonomies and Data," Knowledge and Information Systems, 9(2), March 2006.
2. D.-K. Kang, Y.-K. Chung, W.-R. Doh, W. Jung, and S.-B. Park, "Applying object modelling technique to automated visual inspection of automotive compressor parts

omission,” *International Journal of Machine Tools and Manufacture*, 39(11):1779-1792, August 1999.

### **International Conferences:**

1. F. Vasile, A. Silvescu, D.-K. Kang, and V. Honavar, “TRIPPER: Rule learning using taxonomies,” *Proceedings of the Tenth Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2006)*, Singapore, April 9-12, 2006; Lecture Notes in Artificial Intelligence, 2006, Springer-Verlag (to appear).
2. D.-K. Kang, A. Silvescu, and V. Honavar, “RNBL-MN: A Recursive Naive Bayes Learner for Sequence Classification,” *Proceedings of the Tenth Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2006)*, Singapore, April 9-12, 2006; Lecture Notes in Artificial Intelligence, 2006, Springer-Verlag (to appear).
3. D.-K. Kang, J. Zhang, A. Silvescu, and V. Honavar, “Multinomial Event Model Based Abstraction for Sequence and Text Classification,” *Proceedings of Symposium on Abstraction, Reformulation, and Approximation (SARA-2005)*, Edinburgh, Scotland, UK, July 26-29, 2005; Lecture Notes in Artificial Intelligence, Vol. 3607, pp. 134-148, 2005, Springer-Verlag.
4. F. Vasile, A. Silvescu, D.-K. Kang, and V. Honavar, “TRIPPER: Rule learning using taxonomies,” *Proceedings of AAAI-05 Workshop on Human Comprehensible Machine Learning*, Pittsburgh, Pennsylvania, July 9-13, 2005.
5. D.-K. Kang, D. Fuller, and V. Honavar, “Learning Classifiers for Misuse and Anomaly Detection Using a Bag of System Calls Representation,” *Proceedings of 6th IEEE Systems Man and Cybernetics Information Assurance Workshop (IAW)*, West Point, NY, June 15-17, 2005.
6. D.-K. Kang, D. Fuller, and V. Honavar, “Learning Classifiers for Misuse Detection Using a Bag of System Calls Representation,” *Proceedings of IEEE International Conference on Intelligence and Security Informatics (ISI-2005)*, Atlanta, GA, USA, May 19-20, 2005; Lecture Notes in Computer Science, Vol. 3495, pp. 511-516, 2005, Springer-Verlag.
7. D.-K. Kang, A. Silvescu, J. Zhang, and V. Honavar, “Generation of Attribute Value Taxonomies from Data for Data-Driven Construction of Accurate and Compact Classifiers,” *Proceedings of the Fourth IEEE International Conference on Data Mining (ICDM '04)*, Brighton, UK, November 1, 2004.
8. D.-K. Kang, A. Silvescu, J. Zhang, and V. Honavar, “Generation of Attribute Value Taxonomies from Data and Their Use in Data-Driven Construction of Accurate and Compact Naive Bayes Classifiers,” *Proceedings of Knowledge Discovery and Ontologies Workshop at ECML/PKDD 2004 (KDO-2004)*, Pisa, Italy, September 24, 2004.
9. D.-K. Kang, A. Silvescu, J. Zhang, and V. Honavar, “Learning Attribute Value Taxonomies by Distributional Clustering,” Poster session of *the 2003 International Symposium on Modern Computing*, Ames, Iowa, October 30, 2003.
10. D.-K. Kang, J. Choi, “MetaNews: An Information Agent for Gathering News Articles on the Web,” *Proceedings of the fourteenth international symposium on methodologies for intelligent systems*, Maebashi TERRSA, Maebashi City, Japan, October 28-31, 2003; Lecture Notes in Artificial Intelligence, Vol. 2871, pp. 179-186, 2003.
11. D.-K. Kang, J.-B. Kim, and H.-S. Ham, “HANMAUM - a multi-agent model for customer, merchant, and directory service,” *Proceedings of the Second World Conference of the WWW, Internet, Intranet*, Toronto, Canada, October 31 1997.

12. D.-K. Kang, Y.-K. Chung, W. Jung, W.-R. Doh, and S.-B. Park, "Automated visual inspection of automotive evaporator core using one-to-many template matching," *Proceedings of the Second International ICSC Symposium on Intelligent Industrial Automation*, Nimes, France, September 17 1997.
13. D.-K. Kang, Y.-K. Chung, and W.-R. Doh, "One-to-many template matching for automated visual inspection," *Poster session of the First International Conference on Cognitive Science*, Seoul, Korea, August 15, 1997.
14. D.-K. Kang, J.-B. Kim, J.-C. Sohn, and H.-S. Ham, "A world wide web directory service architecture for electronic commerce," *Proceedings of the Seventh Annual Conference of Internet Society*, Kuala Lumpur, Malaysia, June 24, 1997.

### **Korean Journals:**

1. D.-K. Kang, and H. Ham, "Classification of shopping information services on the web in Korea," *The Journal of Korean Institute of CALS/EC*, 4(2):1-22, 1999.
2. D.-K. Kang, J. Lee, and H. Ham, "A study on design and implementation of automatic product information indexing and retrieval system for online comparison shopping on the web," *The Journal of Korean Institute of CALS/EC*, 3(2):57-71, December 1998.

### **Referee Activities:**

1. IEEE International Conference on Intelligence and Security Informatics 2005
2. IEEE Intelligent Systems, 2005
3. IEEE Workshop on Knowledge Acquisition from Distributed, Autonomous, Semantically Heterogeneous Data and Knowledge Sources 2005

## **Industrial Experience:**

### **02/2001 - 07/2001 : Server Development Manager, XML Cities, Inc. , CA, USA**

Invented patent-pending business-to-business communication system for mid-sized companies. System included tools for query processing from XML documents, retrieving XML documents from distributed data sources, transforming/interchanging XML documents peer-to-peer by XSLT and SOAP, and multiple-publishing XML documents. The service was object-oriented programmed in Java (JDK 1.3) with Xerces/Xalan APIs on Windows 2000 Server using Apache Web server, Tomcat application server, Cocoon, and Apache SOAP.

### **07/1999 - 01/2001 : Principal Research Engineer / Chief Scientist / Founder, Andalay, Inc. , CA, USA**

Invented patent-pending textmining, datamining and information analysis technology for Shopping Agent and Review Analysis System. System included tools for extracting review and product data (including real-time data) and importing that data into a proprietary Product Catalog service. The service was object-oriented programmed in Java (JDK 1.3) on Windows 2000 Advanced Server using MS SQL Server DBMS, Jturbo JDBC and incorporates the use of the JLex parser.

## **02/1994 - 06/1999 : Research Scientist, Electronic Commerce Lab., ETRI , South Korea**

Involved in five national projects and developed a number of industrial softwares in Electronic Commerce framework, Information Retrieval System, Application Server, HTML Editor, and Machine Vision fields. Conducted five outsourcing projects to five renowned Korean universities. Directed the technology transfer and mentor to seven Korean companies. Invented five Korean/Japanese/Chinese patents on Electronic Commerce and Information Retrieval.

### **Patents:**

1. Method and Apparatus for a Shared Server to Host Multiple Information Aggregation and Dispatch Systems  
*USA patent (May 10, 2001)*
2. Analysis of Product Reviews and Presentation of Results  
*USA patent (July 10, 2000)*
3. News information gathering system and algorithm that support mobile computing  
*Korea patent (December 10, 1998; # 97-54167)*
4. Automatic product information indexing system and algorithm of online stores  
*Japan, China, and Korea patent (December 1, 1998; # 98-52222)*
5. 3-D dynamic construction method on Internet web environment  
*Korea patent (October 28, 1997; # 97-55652)*
6. Visual design method of hypertext for web database  
*Korea patent (October 16, 1997; # 97-53158)*
7. Natural language query processing system for product information retrieval on electronic commerce,  
*Korea patent (October 14, 1997; # 97-52617)*

### **Technical Knowledge:**

#### **Language:**

JAVA (8 year experience), C (16 year experience), J#, C#, C++, Python, XML, XSL, XSLT, HTML, PERL, SQL, CGI / ISAPI, PASCAL, FORTRAN, LISP, ASSEMBLY, BASIC, COBOL

#### **Hardware Platform:**

Personal Computer, HP 9000, Sun workstations, IBM RS/6000, Mac, VAX, Altos, Cray2S, Samsung SCARA robot arm, Programmable Logic Controller

#### **Operating Systems & Server Systems:**

Windows XP, Windows 2000 Advanced Server / Server / Professional, Windows NT administration, Windows Me, Windows 98, Windows 95, Windows 3.1, UNIX (Solaris, HP-UX, Linux) administration, X-Window, Jakarta Tomcat, JRun, JServer, JTurbo, Cocoon, XDisect, Palm OS, MS-DOS, VMS, TCP/IP, SMTP, SNMP

## **Database:**

JDBC, Oracle DBMS, MS SQL-Server, MS-Access

## **Library:**

JDK 1.5, WEKA, MFC, OpenGL

## **Software:**

MatLab, Eclipse, JFlex/Cup, LEX/YACC, ANTLR, LaTeX, MS Office

## **Awards:**

- Nominated for Marquis Who's Who in America 2007
- 8/2001~present : Research assistantships & Teaching assistantships from Iowa State University
- 11/1991 : Prize in National PC programming contest (sponsored by Korean Ministry of Commerce)
- 9/1991 : Golden Prize in National undergraduate software programming contest (sponsored by Hyundai Electronics)
- 9/1990 : Prize in National undergraduate software programming contest (sponsored by Hyundai Electronics)
- 1990 : Scholarship from Hanyang University

## **Teaching Experiences:**

- 01/2006 – Present : “Software Engineering Practices” in Iowa State University
- 08/2005 – 12/2005 : “Principles of Network and Distributed Programming” in Iowa State University
- 01/2005 – 05/2005 : “Principles and Practice of Compiling” in Iowa State University
- 08/2004 – 12/2004 : “Linux Operating System Essentials” in Iowa State University
- 01/2002 – 05/2004 : “Software Engineering Practices” in Iowa State University
- 05/2002 – 08/2002 : “Introduction to Operating Systems” in Iowa State University
- 01/2002 – 05/2002 : “Formal Methods in Software Engineering” in Iowa State University
- 07/1995 – 08/1995 : “C Programming Language” in Woosong University
- 08/1992 – 02/1993 : “Personal Computer Practice Lab.” in Sogang University

## **References**

- Available upon request.