

Kiyoung Yang

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Information Laboratory
Computer Science Department
Viterbi School of Engineering
University of Southern California

- Objective** Seeking a research scientist or software engineer position where my research experience can be further advanced and/or where my research experience can be utilized in real-world applications.
- Qualification** Strong Research Background in Database and Data Mining
- Education**
- University of Southern California** Los Angeles, CA
• Ph.D. in Computer Science Jan. 2002 ~ Dec. 2006 (expected)
Dissertation title: Multivariate Time Series Analysis based on Principal Component Analysis
Advisor: Dr. Cyrus Shahabi
• M.S. in Computer Science Jan. 2001 ~ May 2002
- Korea Advanced Institute of Science and Technology (KAIST)** Taejon, Korea
• B.S. in Computer Science Mar. 1992 ~ Feb., 1996
- Work Experience**
- University of Southern California** Los Angeles, CA
• Research Assistant Fall 2001 – present
Information Laboratory (Dr. Cyrus Shahabi)
• Teaching Assistant Spring 2002, Fall 2002
CSCI 585: Database Systems (Spring 2002)
CSCI 599: Special Topics in Multidimensional Databases (Fall 2002)
- IBM Almaden Research Center** San Jose, CA
• Summer Internship Jun. 2006 – Aug. 2006
Developed data mining algorithms for the data sets generated in the Storage Area Network (SAN) domain in order to automate the process of best practice generation.
- Oracle Korea** Seoul, Korea
• Senior Technical Consultant Aug. 1999 – Oct. 2000
Consulted for a number of financial companies, e.g., Shin-Han Securities and Kyobo Securities on distributed databases and SQL tuning
- Tong Yang Systems Corp.** Seoul, Korea
• Technical Staff Feb. 1996 – May 1999
Administered multiple database and Unix systems for TongYang Life Insurance and TongYang Securities
- Relevant Research and Project Experience**
- Multivariate Time Series Analysis**
- Developed a similarity measure for multivariate time series based on principal component analysis (PCA), termed Eros (Extended Frobenius Norm). Empirically, our similarity measure has been shown to outperform traditional distance measure, e.g., Euclidean distance.
 - Developed an index structure for our similarity measure, termed Muse (Multilevel distance-based index structure for Eros), in order to efficiently retrieve similar multivariate time series data.
 - Developed a couple of feature/variable subset selection techniques for multivariate time series, based on Common Principal Component Analysis (CPCA), and devised a feature extraction technique for multivariate time series based on the Kernel Method, KEros (Kernel methods using Eros).
 - Proposed to utilize the stationarity of multivariate time series before applying (C)PCA-based techniques.
- 2020Classroom Project**
- Developed a module to connect from a game engine to a database in order to store the players' behavior within an educational game in MS C++.
 - Developed an application, termed ISIS (Immersidata Analysis), in order to facilitate the game design analysis in C#.
- An Immersidata Management System (AIMS) Project**
- Developed an application where a user can manipulate a media player with body motions using two gloves and two trackers attached to the gloves, termed VIEW-AIMS (<http://imsc.usc.edu/movies/demos/view-aims/viewaims.wmv>) in MS C++.

JPL Genesis II Project

- Developed an application where users can visually select the regions of interest and the time period of interest and then perform the query in wavelet domain for Propolyne using MS SQL-Server and C#.

Selected Publications**Journal Articles**

1. Kiyoung Yang, Cyrus Shahabi, An Efficient k Nearest Neighbor Search for Multivariate Time Series, Information and Computation, 2006 (in press)
2. Cyrus Shahabi, Tim Marsh, Kiyoung Yang, Hyunjin Yoon, Albert A. Rizzo, Minyoung Mun, Margaret Mclaughlin, Four Case Studies in Immersidata Analysis, IEEE Computer (accepted with minor revision)
3. Hyunjin Yoon, Kiyoung Yang, Cyrus Shahabi, Feature Subset Selection and Feature Ranking for Multivariate Time Series, IEEE Transactions on Knowledge and Data Engineering (TKDE) - Special Issue on Intelligent Data Preparation, September 2005

Conference Papers

4. Tim Marsh, Kiyoung Yang, Cyrus Shahabi, Seon Ho Kim, Immersidata Management and Analysis For Game Development and Assessment For Staying There, International Conference on Digital Interactive Media Entertainment & Arts (DIME), Bangkok, Thailand, October 2006
5. Kiyoung Yang, Cyrus Shahabi, On the Stationarity of Multivariate Time Series for Correlation-Based Data Analysis, The Fifth IEEE International Conference on Data Mining (ICDM'05), Houston, Texas, USA, November 2005
6. Kiyoung Yang, Cyrus Shahabi, A Multilevel Distance-based Index Structure for Multivariate Time Series, The 12th IEEE International Symposium on Temporal Representation and Reasoning (TIME'05), Burlington, Vermont, USA, June 2005
7. Kiyoung Yang, Hyunjin Yoon, Cyrus Shahabi, CLeVer: A Feature Subset Selection Technique for Multivariate Time Series, The Ninth Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD-05), Hanoi, Vietnam, May 2005

Workshop Papers

1. Tim Marsh, Kiyoung Yang, Cyrus Shahabi, Game development for experience through staying there, ACM SIGGRAPH Video Game Symposium (co-located with SIGGRAPH2006), Boston, MA, USA, July 2006
2. Kiyoung Yang, Cyrus Shahabi, A PCA-based Kernel for Kernel PCA on Multivariate Time Series, ICDM 2005 Workshop on Temporal Data Mining: Algorithms, Theory and Applications, Houston, Texas, USA, Nov. 2005
3. Kiyoung Yang, Tim Marsh, Minyoung Mun, Cyrus Shahabi, Continuous Archival and Analysis of User Data in Virtual and Immersive Game Environments, The 2nd ACM Workshop on Capture, Archival and Retrieval of Personal Experiences (CARPE'05), Singapore, November 2005
4. Kiyoung Yang, Hyunjin Yoon, Cyrus Shahabi, A Supervised Feature Subset Selection Technique for Multivariate Time Series, SDM 2005 International Workshop on Feature Selection for Data Mining: Interfacing Machine Learning with Statistics (FSDM), Newport Beach, CA, April 2005
5. Kiyoung Yang, Cyrus Shahabi, A PCA-based similarity measure for multivariate time series, Proceedings of the Second ACM International Workshop on Multimedia Databases, ACM-MMDB 2004, Washington, DC, USA, November 13, 2004. ACM 2004

Computer Skills

- Programming Languages: C/C++, Matlab, SQL, Java, C#, Perl, JSP/Servlet, Javascript
- Markup Languages: LaTeX, HTML, XML
- Operating Systems: UNIX/LINUX, Windows
- Databases: Oracle, DB2, Informix, MS SQL-Server, MySQL
- Miscellaneous: CVS, SVN

Award, Certificates and Membership

- Best Presentation Award for IMSC Student Conference
- Oracle Certified Professional (Oracle 7, Oracle8, Oracle 8i)
- IBM Certified AIX Professional (AIX 4)
- Student Member of IEEE

Services

External Reviewer for

- ACM SIGKDD 2006, CIKM 2005, SIGMOD 2004, CIKM 2005
- IEEE International Conference on Data Engineering (ICDE), 2004

References

Available upon request