Jong "John" P. Yoon, PhD

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PROFESSIONAL EXPERIENCE

Mercy College, Math/CIS Dept, Dobbs Ferry, New York, Sept 2009 – Present

Full-time assistant professor; Teaching in Computer Science, Information Assurance and Security Program (www.cysecure.org), and Program Coordinator in Computer Science.

Program Coordinator. Computer Science Program Coordinator since Fall 2010

Cybersecure Lab. Organizing the lab

Manhattanville College, Purchase, New York, & **University of Maryland,** University College, Maryland, Dec 2007 – May 2008

Adjunct Faculty; Teaching Computer and Information Technology, Visual Basics with Excel and Access, Problem Solving in C++, Programming Language in Java, Data Structures and Algorithms in Java

Time Inc, New York, New York, Nov 2007 – Sept 2008

Security and Software Developer (Consultant); Time Inc., a Time Warner Company, publishes thousands of magazines and possesses very large digital (image) assets. Articles, photos and advertisements for magazines are electronically collected and edited from all over the world for publication in distributed technologies.

Database Security Management. Implemented Java-embedded and SQL/PL programs to authenticate user identities and roles; Designed the proxy-based, encryption-based, and authentication mechanism for web-based applications (including ftp services); Developed a VPD (Virtual Private Databases) for privilege and role-based, application context-based, fine-grained access control and authorization; Programmed in SQL/PL the trigger-based auditing and recovery systems.

Network Security Management. Tracked back the log files of each application program to detect DoS (Denial of Service) attack patterns and to recover attack damages; Set up proxy servers for the purpose of security management; Programmed multi-thread socket programming for TCP/UDP data transmission.

Key, Certificate and Encryption. Generated symmetric and asymmetric keys (by multiple algorithms) and certificates for each system by setting up a CA (Certificate Authority) within the company; Signed and deployed server certificates in master and replicated servers and client certificates in various clients; Implemented application Java and C++ programs to encrypt sensitive data as well as CLOBs and BLOBs; Set up single-sign-on (SSO) by using LDAP capabilities; Programmed Unix Shell-based/Perl-based SSH executions by building key-chaining SSH-keys.

LDAP (Lightweight Directory and Access Protocol) centered Information Assurance. Built a company-side LDAP servers and replicates; Created LDAP schemas, LDIF (LDAP Data Interchange Format), DIT (Directory Information Tree) and ACI (Access Control Information); Organized user credentials and server and application program directories; Integrated the LDAP schemas, LDIF, DIT and ACI from various legacy directory servers; Implemented authentication and authorization programs in Java to access application programs on particular Unix servers; Programmed Unix Shell (w/ awk) and Perl programs to bind LDAP clients remotely and automatically and manage local client certificates remotely.

University of Louisiana, Lafayette, LA. June 1999 – July 2006

Assistant Professor in The Center for Advanced Computer Studies; The Center for Advanced Computer Studies in University of Louisiana at Lafayette is the leading and the first Computer Science/Engineering graduate institution in the South to research, development and apply innovative computer and information technologies. Also, jointly appointed with Southern University at Baton Rouge, June 1999 – May 2004.

Research & Development Interest: Fast (Content-/Context-Based) Search XML Documents, Access Control and Information Security Management in GeoTemporal Context, Indexing Structures for Complex Data Analysis

Research and Development Project Highlights:

Security Management. Implemented an access control technique and integrated the authorization policies with object data repository. Improved the performance of access authorization by two orders; published its outcome in a prestigious Journal (Funded by National Geospatial-Intelligence Agency, US). This work has been extended to security management in identification and location of moving pictures in geospatial data.

Data Structure for Complex Information. Created the content- and context-based object search tree, which can extract metadata for complex XML and SVG objects. The steps are: Read vector image data and convert into SVG; Smallest image entities, which contain multiple layered primitive image object, are identified; Construct a "containment" tree, in which a larger entity contains its component smaller entities; Then, search a tree structure to match images. Achievement: Modeled complex data efficiently in a fast searchable tree structure and defined the distance functions between sub-context/contents of objects (Funded by Louisiana Board of Regency and National Geospatial-Intelligence Agency, US)

Time-series Data Analysis. Developed and implemented a software package that can extract, compare and predict the trend data changes from time-series financial streaming data. The steps are: Read stock prices and aggregate every *n* data points; Extract approximates (trend sequence) for those dataset; (A trend represents multiple datasets which are in the ballpark.) An older trend sequence is aggregated with *n*-1 newer trend sequences; Continue these steps to generate a trend sequence that represents more fine-grained trends for recent past datasets and coarse trends for past datasets; Construct approximate measurements to find similar, less-similar or dissimilar time-series. Achievement: Formalized the trends of the time-series data in *scale- and time-invariant*, and the trend correlations to characterize and support the financial consequence (Funded by Ministry of Information and Communications, Korea).

Web Information Management. Designed an Intelligent Advertisement System by generating the inter-format transferable XML documents and also by automating XML document formatting and updating (Funded by Ministry of Information and Communications, Korea).

Sookmyung Women's University, Seoul, Korea. August 1994 – June 1999

Assistant Professor in the Computer Science Department, also chaired the Computer Science Department, for 3 Years, operated the budgets for 400 undergraduate and 100 graduate students, and established 8 research labs in the department (http://www.sookmyung.ac.kr)

Research & Development Interest: Digital Libraries Design and Implementation, Association Rule Mining in Database Technologies, Data Mining from Stock Market Databases

Research and Development Project Highlights:

Developed an "temporal" active database that can control the balance of power distribution and alarm source identification for the Korean electrical power distribution system

Implemented user-interest data mining in response to user SQL queries

Designed and developed the internet-based image-text-multimedia digital library

Served as a database consultant to the gigantic companies, Samsung Electronics, Samsung Data Systems, and Hyundai Information Technology, Korea, in the area of the integration of both engineering and business application domains.

Served as a Software Engineering Consultant to the leading national research institute in Korea, Software Engineering Research Institute, for the designing and development of the software engineering data repositories

George Mason University, Fairfax, Virginia. August 1993 – August 1994

Research Associate in the Department of Information and Software Engineering, which is now in the Department of Computer Science which is high ranked with about 50 faculty members and high-end computer facilities (http://www.cs.gmu.edu/)

Research and Development Project Highlights:

Information integration, exchange, and management of database semantics (DARPA project)

Initial phase of user requirement analysis and (alphanumerical, satellite image, archival, operational) data modeling for Earth Observing System Distributed Information Systems (NASA project)

EDUCATION

Ph.D. Degree, in Information Technology (Computer and Information Science Area: www.cs.gmu.edu), George Mason University, Fairfax, Virginia, 1993.

Dissertation: "Constraint Management in Active Databases" *Advisor*: Dr. Larry Kerschberg.

M.S. Degree, in Electrical Engineering (Computer Science Area: www.cis.ufl.edu), University of Florida, Gainesville, Florida, 1987

Thesis: "An Object-Oriented Approach to Semantic Association Management in a DBMS" *Advisor*: Dr. A. Arroyo & Dr. Stanley Y.W. Su.

B.S. Degree, in Electrical Engineering (ee.yonsei.ac.kr), Yonsei University, Seoul, Korea, 1981.

BIBLIOGRAPHY (*Selected*)

Information Security

Jong P. Yoon, Chapter "Access Control for File Resources in Cloud Services" in the **Book** entitled "**Grid and Cloud Database Management**," edited by G. Aloisio and S. Fiore, to be printed in 2011.

Jong P. Yoon and Joyce Yoon, "Interoperating DNA Gene Sequences and Nutrition Provisions for Personalized Wellness," 1st Workshop on Bio-inspired Models and Technologies for Ambient Information Society, Boston, Dec., 2010.

Jong P. Yoon and Z. Chen, Service Trustiness and Resource Legitimacy in Cloud, to appear in the Fifth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing, Fukuoka, Japan, 2010.

Zhixiong Chen and John Yoon, IT Auditing to Assure a Secure Cloud Computing, In the proceedings of The 6th IEEE World Congress on Services, July 5-10, 2010, Miami, Florida.

Jong P. Yoon and Z. Chen, Using Privilege Chain for Access Control and Trustiness of Resources in Cloud Computing, in the Second International Conference on Networked Digital Technologies, Czech, 2010.

Jong P. Yoon and Z. Chen, Localization and Detection of Vector Logo Image Plagiarism, 1st Int'l Conference on Digital Forensics and Cyber Crime, New York, 2009, also appears in the book entitled Advances in Digital Forensics II, Springer, 2010.

Jong P. Yoon, Presto Authorization: A Bitmap Indexing Scheme for High-speed Access Control to XML Documents**, IEEE Transactions on Knowledge and Data Engineering**, Vol. 18, No. 7, 2006.

A. Ravichandran, J. Yoon, Trust Management with Delegation in Grouped Peer-to-Peer Communities, 11th ACM Symposium on Access Control Models and Technologies, June 7-9, 2006.

Abhilash Gummadi, Jong P. Yoon, Modeling Group Trust for Peer-to-Peer Access Control, The First Int'l Workshop on P2P Data Management, Security and Trust, 2004.

Abhilash Gummadi, Jong P. Yoon, Biren Shah, Vijay Raghavan, A Bitmap-based Access Control for Restricted Views of XML Documents, ACM Workshop on XML Security, October, 2003.

Jong P. Yoon, Bitmap-based High-speed Access Control for XML Documents, in the Seventeenth Annual IFIP 11.3 Working Conference on Database and Applications Security, Colorado, August 4-6, 2003; "High-speed Access Control for XML: a Bitmap-based Approach" also appears in a Chapter book *Data and Applications Security XVII: Status and Prospects* edited by S. di Vimercati, I. Ray, in 2004.

Jong P. Yoon, Validation and Verification of Data in Object-Oriented Databases, Symposium on Computer Assurance (COMPASS), NIST, 1989.

Web, XML, and Image Management

Byungwoo Kim, Jong P. Yoon, Similarity Measurement for Aggregation of Spatial Objects, 20th ACM Symposium on Applied Computing, Multimedia and Visualization Track, 2005.

Biren Shah, Abhilash Gummadi, Jong P. Yoon, Vijay Raghavan, Efficient Dynamic Indexing Retrieval of XML Documents using Three-Dimensional Quasi-BitCube, WWW 2004 Workshop on High Performance XML Processing, New York, 2004.

J. Yoon, L. Kerschberg, A Functional Approach to XML-based Dynamic Negotiation in e-Business, in a **Chapter of the book** entitled ``Functional Approach to Computing with Data," edited by P. Gray and et. al., Physica-Verlag Springer-Verlag, 2003.

Byungwoo Kim, Jong P. Yoon, XML Metadata Generation for Vector Images, 2003 International Conference on Imaging Science, Systems, and Technology (CISST'03), Las Vegas, Nevada, June 23-26, 2003.

Byungwoo Kim, Jong P. Yoon, XML Metadata Generation for Vector Images, WWW 2003 Conference, 2003.

J. Yoon, S. Kim, Schema Extraction for XML Document Retrieval, in **Journal of Applied Systems Studies**, Vol. 3, No. 2, Cambridge International Science Publishing, Cambridge, UK, 2002.

J. Yoon, S. Kim, G. Kim, V. Chakilam, Bitmap-based Indexing for Multi-Dimensional XML Multimedia Documents, 5th Int'l Conf. on Asian Digital Libraries, Singapore, December, 2002.

Byungwoo Kim, Venu Chakilam, Jong P. Yoon, Spatial Relationship Modeling and Indexing for XML Multimedia Data Retrieval, 3rd Intl ACM SIGMM 2001 Workshop on Multimedia Information Retrieval, Ottawa, Canada, October 5, 2001.

Jong Yoon, Vijay Raghavan, Venu Chakilam, and Larry Kerschberg, BitCube: A Three-Dimensional Bitmap Indexing for XML Documents, **Journal of Intelligent Information Systems**, pages 241-254, Vol. 17, November 2001.

J. Yoon, and S. Kim, Schema Extraction and Levelization for XML Data, in Proc. of Data Mining and Knowledge Discovery: Theory, Tools, and Technology II, Florida, April 2001.

J. Yoon, A. Hafez, and V. Raghavan, Query Rewriting for Multimedia XML Data, in the Proceedings of the Sixth International Workshop on Multimedia Information Systems, Chicago, Ocotober 26 - 28, 2000.

J. Yoon, V. Raghavan, Multi-Level Schema Extraction For Heterogenous Semi-Structured Data, in Proc. (The Lecture Notes of Computer Science by Springer-Verlag) of the First International Conference on Web-Age Information Management, June 2000.

J. Yoon, S. Kim, Schema Extraction for Multimedia XML Document Retrieval, in Proc. of International Database Symposium on Mobile, XML and Post-Relational Databases, Hong Kong, June 2000.

Data Mining and Data Management

J. Yoon, L. Kerschberg, A Query-Driven Interesting Rule Discovery Using Association and Spanning Operations, in a **Chapter of the book** entitled ``Granular Computing and Data Mining," edited by Lin, T.Y., Yao Y. and Zadeh, L., Data Mining, Rough Sets and Granular Computing, Physica-Verlag Springer-Verlag, 2002.

J. Yoon, Y. Luo and J. Nam, A Bitmap Approach to Trend Clustering and Prediction in Time-Series Databases, appear in Proc. of Data Mining and Knowledge Discovery: Theory, Tools, and Technology II, Florida, April 2001.

J. Yoon, J. Lee, and S. Kim, Trend Similarity in Time-Series Data, in Proc. of Data Mining and Knowledge Discovery: Theory, Tools, and Technology II, Florida, SPIE Vol 4057, pp. 201-212, 2000.

J. Yoon, and L. Kerschberg, Query-Initiated Discovery of Interesting Association Rules, First International Conference on Discovery Science, Fukuoka, Japan, Dec, 1998.

J. Yoon, and S. Kim, A Three-Level User Interface to Multimedia Digital Libraries with Relaxation and Restriction, IEEE Conf. on Advanced Digital Libraries, Santa Barbara, pp206-215, 1998.

J. Yoon, and S. Kim, A Multimedia Document Retrieval Technique in Digital Libraries, Proc. of Int'l Symposium on Research, Development and Practice in Digital Libraries, pp. 92-98, Tsukuba, 1997.

J. Yoon, and S. Kim, Multimedia Query Processing for Digital Libraries, Proc. of the Int'l Conf. on Digital Libraries and Information Services for the 21st Century, 1996.

J. Yoon, Extracting Database Knowledge from Query Trees, **Journal of Electrical Engineering and Information Science**, Vol.1, No.2, pp.145-156, 1996.

L. Kerschberg, and et. al., Data and Information Architectures for Large-Scale Distributed Data Intensive Information Systems, Proc. of the 8th Int'l Conf. on Scientific and Statistical Database Management, 1996.

J. Yoon, Using Constraints for Distributed Query Processing, Proc. of 19th IEEE Conference on Computer Software and Applications, 1995.

J. Yoon, and L. Kerschberg, Semantic Update Optimization in Active Databases, Proc. of 6th IFIP TC-2 Conference on Data Semantics (DS-6), 1995.

J. Yoon, and L. Kerschberg, Semantic Query Optimization in Deductive Object-Oriented Databases, Springer-Verlag Lecture Notes in Computer Science on Deductive and Object-Oriented Databases, pp. 169-182, 1993.

J. Yoon, and L. Kerschberg, Semantic Query Reformulation in Object-Oriented Databases, Proc. of Workshop on Combining Declarative and Object-Oriented Databases, pp. 73-85, 1993.

J. Yoon, Database Updates Using Active Rules: A Unified Approach for Consistency Maintenance, Proc. of Third International Symposium on Database Systems for Advanced Applications, pp. 272-278, 1993.

Kerschberg, L., Baum, R., Waisanen, A., Yoon, J., Huang, I., "A Taxonomy of Knowledge-Based Approaches to Fault Management for Telecommunications Networks," **Journal of Computers and Electrical Engineering**, 1993.

J. Yoon, and L. Kerschberg, A Framework for Knowledge Discovery and Evolution in Databases, **IEEE Transactions on Data and Knowledge Engineering**, vol 5, pp. 973-978, 1993.

J. Yoon, Knowledge Discovery for Evolutionary Systems, Proc. of the Fourth IEEE International Conference on Tools for Artificial Intelligence, pp. 371-385, 1992.

J. Yoon, Knowledge Discovery and Evolution in Databases: A Unified Approach, Proc. of the Second Japanese Knowledge Acquisition for Knowledge-Based Systems, pp. 192-199, 1992.

TEACHING RECORD

Course Offered for the First Time in Mercy

IASP525 Distributed Database Security, graduate course in Information Assurance and Security Program, offered in Spring 2010

Course Improved in Mercy

CISC131 and 231 Foundations of Computing I and II, core course in Computer Science Program, tested in Summer 2010 and will offer from Fall 2010. Focusing on programming concepts with ample examples and exercises, with some of graphical user interface implementation.

Courses Planned to Enhance Mercy CS/IASP Program

Soon as a well-known commercial-off-the-shelf software package, courses from certification program to regular high prestigious MS degree program will be offered. One of the courses is Forensic Investigation and Investigation for Image Forensics.

Courses Taught [Previous]

All subjects of undergraduate level computer sciences, and security and database-related graduate level courses

RESEARCH GRANT AWARDS

Years	Project	Role	Grant	Funding Agency
2010 - 2010	Detection Algorithm of Image Plagiarism	PI	$1,500	Mercy Faculty Development Committee
2003 - 2006	Vector Image Modeling and Image Security Management	PI	$350,000	National Geospatial-Intelligence Agency
2002 - 2003	Risk Analysis and Decision Support System	Co-PI	$240,000	NASA
2001 - 2003	Web-based Advertisement Systems	PI	$80,000	Korea Ministry of Information and Communications
1999 - 2002	Information Gathering, Analysis and Services	Co-PI	$300,000	NSF
2000 - 2002	XML Data Inter-operability and Management	PI	$85,000	Louisiana Board of Regency

OTHER RESPONSIBILITIES & SERVICES

Professional Activities

Conference Session Chair and Conference Paper Review

In the Previous Institutions

Research advisor for undergraduates, graduate students

Academic advisor for Graduate students

Producing more than 30+ MS graduates and 2 PhD graduates

Journal Reviews: IEEE TKDE, JIIS, ACM JERC etc

Conference Paper Reviews: ACM SIGMOD, IEEE DM, etc

Program Committee: IEEE DM, Multimedia Information Systems, etc

Membership: ACM SIGs, IEEE Computer Society, IFIP WG 11.9

Invited Talks in several international workshops and in many institutions