

CURRICULUM VITAE

BYUNGGU YU

PhD in Computer Science, Illinois Institute of Technology, Class of 2000
U.S. Citizen

CONTACT INFORMATION

WORK	Preferred ANY TIME CONTACT
(202) 274-6289 byu@udc.edu	(240) 401-2473 byunggu.yu@gmail.com

ACADEMIC APPOINTMENTS

May 2013 – present	Faulty Appointee for Computer Science, ZP-V, National Institute of Standards and Technology (NIST).
Aug 2012 – present	Board Tenured Full Professor, University of the District of Columbia (Recorded Board of Trustees Approval: UDC Resolution 2013-32 pursuant to 8B DCMR 1470 University Tenure and Promotion Policies and Procedures)
Jan 2008 – Nov 2014	Chair, Computer Science and Information Technology, University of the District of Columbia
Aug 2007 – Aug 2012	Associate Professor, Computer Science and Information Technology, University of the District of Columbia
Aug 2006 – July 2007	Associate Professor, Computer Science and Information Systems, National University
Aug 2000 – July 2006	Assistant Professor, Computer Science, University of Wyoming

NON-ACADEMIC POSITIONS AND APPOINTMENTS

July 2015 – present	Executive Director and CEO, Clearton, LLC
Sept 2009 – present	Founding Director, Informatics Lab, University of the District of Columbia http://informatics.udc.edu
Sept 2009 – June 2015	Founding Director, ARCTIC: Assurance Research Center for Trusted Information Computing, University of the District of Columbia http://informatics.udc.edu/arctic

July 2012 – June 2014	Elected member of the Governance Committee of SURAgGrid (a VO to Open Science Grid): www.suragrid.org
Aug 2010 – Oct 2014	POC and BD of UDC (subcontractor), Alion Science (prime contractor), SNIM (DOD-DTIC 2-billion ID/IQ).
Nov 2009 – June 2012	Member, Institutional Review Board (IRB), University of the District of Columbia: <u>Contribution recognition is available upon request</u>

RECENT SYNERGISTIC LEADERSHIP AND CONTRIBUTION

2015: Founding Chairman, Cleartron, LLC.

2013: Received NSA/DHS Designation of National Center of Academic Excellence in Information Assurance Education (CAE-IAE):
<http://informatics.udc.edu/arctic> and
<http://csit.udc.edu>.

2013: Received Faculty Appointment at NIST (National Institute of Standards and Technology) for research in computer and network security and Big Data.

2012-2013: Developed and Co-signed education sharing agreements with the University of Denver, Catholic University, Montgomery College, and UDC's Community College.

2011: Received NSA Certification in 4011 (Systems Security Professionals) and 4012 (Senior Systems Managers) for our Information Assurance education. Allowed to issue institutional certificates to our graduating seniors. Sponsored and managed by ARCTIC: <http://informatics.udc.edu/arctic>.

2011: Initiated "ZeroCloud", a cloud data center 100% powered by renewable energy.

2011: Created a new workshop – 2011 ARCTIC-IAW ARCTIC Information Assurance Workshop, <http://informatics.udc.edu/arctic>, Aug 3-5, 2011, Washington, D.C.

2011: Enrolled in an official EC-Council's Certified Ethical Hacker training program (with targeted

certification in April or May) in order to (1) facilitate SNIM/LMSS DOD contract opportunities by satisfying DOD Directive 8570 Ext 2.B; (2) enhance cyber-security and IA program/center at the University.

2011: Working with an NSF media person and the director of Sensor and Sensing Systems to develop the featured article of our Team's Environmental Urban Runoff Monitoring project that was selected as a featured project by an NSF media person during 2011 NSF CMMI Grantees Conference, Atlanta, GA. This will enhance the visibility and reputation of the University.

2011: Working with UDC Marketing office to develop a smart-phone connected Smart Stick for blind persons as a showcase community service project.

2011: Completely upgrading both Computer Science and Information Technology curricula with faculty committees.

2011: Developing a multi-touch electronic advisor in the hallway of the Department with a newly hired visual analytics /HCI faculty member to enhance student service at the University.

2010: Developed departmental open-source, seed cloud with used computers from other units of the university; Developed a advanced video database system from scratch for the Psychology Department's new Counseling Center (5 rooms and 1 control room) at UDC.

2010: Developed new business -- SNIM (Simulation, Network, Information, and Modeling), DOD Award, DTIC, IACs, DOD: New DOD multiple award ID/IQ contract, Dr. Yu participated in the proposal development and currently a partner of the Alion's team, up to 2 billion, 2010 – 2015.

2010: Developed a new Information Assurance center -- ARCTIC (<http://informatics.udc.edu/arctic>) based on Dr. Yu's active NSF award (No. 0911969) and other grants: ARCTIC helped the development of and will match the University's support for a new 2010 Strategic Initiative project entitled "Authentication in Mobile-Cloud Environments"; ARCTIC has already produced 4 new student projects (click "Projects" on the ARCTIC home page).

2009: Developed a new multidisciplinary research lab -- Informatics Lab (<http://informatics.udc.edu>) based on Dr. Yu's active NSF award (No. 0940393) and other grants.

2008-present: Developed a new "departmental" web IT system and the very first CSIT web site and all materials (the first time in the department's history) at UDC: 2008 – present (mentored students to develop a new version in 2010:

<http://csit.udc.edu>) -- Centralized Information Exchange for CSIT staff, faculty, and students.

2008-present: Led the Department (CSIT at UDC) as the Chair and the lead author of CS ABET Self-study Report to enhance the Department's Curricula: Dr. Yu developed the original "Three Book" Program Review System, leading to the full ABET Accreditation (the first time in the department's history) of the BSCS program: Fall 2008 Visit, 2009 Accreditation – September 2015.

2000-present: Serves many journals and conferences as a reviewer, organizer, and program committee member

2008–present: Empanelled a CSIT Departmental Advisory Board and established relationships with DC and Federal agencies, including NIST, OCTO, NSF, and NIH, 2008 – present.

2008-present Leading the early planning for UDC's first PhD program in CS, 2009 – present

2008: Developed memoranda of agreements to formalize collaborations with other institutions: Texas A&M Texarkana, the University of Denver, Alion Science for DOD/USAF SNIM, 2008 – present

RECENT GRANTS AND SPONSORED PROJECTS

Dr. Byunggu Yu and Dr. Sabine U. O'Hara. STTR Phase I: Automation and Optimization of Aquaponics for Urban Food Production, NSF Award No. 1521153, NSF, National Science Foundation, \$224,955, July 1, 2015 – June 30, 2016, Funded.

Dr. Byunggu Yu, Dr. Angelyn Flowers, Dr. Meena Srinivasan, Dr. Seon Ho Kim, Dr. Pradeep Behera, Dr. Kunhee Choi, Dr. Lily R. Liang. Strategic Initiative: Authentication in Mobile-Cloud Environments, \$25,000, UDC Strategic Initiative, 2010-2011 (plus \$10,000 match by ARCTIC), Funded.

Dr. Byunggu Yu, Dr. Sherali Zeadally, Dr. Lily R. Liang, and Dr. Li Chen, Collaborative Research: A Partnership for Developing the IA Workforce, NSF Award No. 0911969, Sept 1, 2009 – Aug 31, 2014 (\$300K for UDC for Phase I, \$240K and additional 60K assigned for Univ. of Denver counterpart and external evaluator), Funded.

Dr. Byunggu Yu, Dr. Pradeep Behera, Dr. Seon Ho Kim, and Dr. Paul Cotae, Environmental Urban Runoff Monitoring, Award NSF-CMMI-0940393, NSF, National Science Foundation, \$100,000, July 1, 2009 – Dec 31, 2011, Funded.

Dr. Byunggu Yu and Dr. Pradeep Behera, Application of Spatiotemporal Informatics to Water

Quality, Water Resource Research Institute, under Grant 6F4200 from Federal USDO/US Geological Survey, \$30,000/\$15,000 from WRRI, Phase II: June 2009- May 2010, Funded.

Dr. Byunggu Yu and Dr. Pradeep Behera, Application of Spatiotemporal Informatics to Water Quality, Water Resource Research Institute, under Grant 6F4200 from Federal USDO/US Geological Survey, \$30,000/\$15,000 from WRRI, Phase I: June 2008-May2009, Funded.

Dr. Byunggu Yu, Dr. Seon Ho Kim, SPOT-SQL, Sun Microsystems. SPOT-SQL One Phase I: 3 SPOT developer packages w/ 9 SPOTs and three developer software at about \$1,857 and technical support; collaboration with Sun scientists in Java DB and SPOT research. Funded for on-going effort.

Dr. Byunggu Yu, Multi-Layer Spatial Access Methods, Informix Software, Inc., \$222,250.00, 2001 – 2004, Informix Software, Inc., Informix S/W, Technical Supports, and Training Award, 2001.

Dr. Byunggu Yu, Towards Processing Complex Spatial Queries, NSF EPSCoR NSFLOC4304, \$33,028.97, 2001 – 2003, Funded.

Dr. Byunggu Yu, Co-PIs: Dr. Ruben Gamboa and Dr. Thomas Bailey, A Database Server for Moving Object Trajectories, NSF 04-500, IIS, IDM, Rated “Competitive” by NSF panel but not funded.

Dr. Byunggu Yu, A Scalable Database Server for Moving Object Trajectories, NSF 02-111, IIS, IDM, Rated “Competitive” by NSF panel but not funded.

Dr. Seon Ho Kim, Dr. Pradeep Behera, and Dr. Byunggu Yu, Development of a Fast Optimization Technique Using Interactive Spatial Join for GIS Applications in Water Resources, under Grant 6F4200 from Federal USDO/US Geological Survey, \$30,000/\$15,000 from WRRI, Phase I: June 2009-May 2010, Funded.

Dr. Ronald Uhlig (contact person), Dr. Ali Farahani, Dr. Byunggu Yu, Dr. Feodor Vainstein, Dr. Shekar Viswana, Dr. Howard Evans (School Dean), Achieving Compelling Student Comprehension of Complex Information Structures, National University, \$19,000 in cash and \$49,000 in technology for 2007-2008 AY, HP Higher Ed. Grant ID 1896669. Funded.

SELECTED PUBLICATIONS

Dong Hyun Jeong, Soo-Yeon Ji, Evan Suma, Byunggu Yu, Remco Chang, Designing a Collaborative Visual Analytics System to Support Users' Continuous Analytical Processes, Human-centric Computing and Information Sciences, (to appear), Springer

Dong Hyun Jeong, Soo-Yeon Ji, Tera Greensmithz, Byunggu Yu, and Remco Chang, Understanding Implicit and Explicit Interface Tools to Perform Visual Analytics Tasks, 2014 IEEE International Conference on Information Reuse and Integration, in print, 2014, IEEE.

Sergey V. Maydebura, Dong Hyun Jeong, and Byunggu Yu, Understanding Environmental Influences on Performing Password-based Mobile Authentication, 2013 IEEE International Conference on Information Reuse and Integration, pp. 728-731, 2013, IEEE.

Soo-Yeon Ji, Sharad Sharma, Byunggu Yu, and Dong Hyun Jeong, Designing a Rule-Based Hourly Rainfall Prediction, Proceedings of the 2012 IEEE International Conference on Information Reuse and Integration, pp. 303-308, 2012, IEEE.

Byunggu Yu, Alfredo Cuzzocrea, Dong Jeong, and Sergey Maydebura, On Managing Very Large Sensor-Network Data Using Bigtable, Cluster, Cloud and Grid Computing (CCGrid), 2012 12th IEEE/ACM International Symposium on , vol., no., pp.918-922, 13-16 May 2012, IEEE/ACM.

Byunggu Yu, Alfredo Cuzzocrea, Dong Hyun Jeong, Sergey Maydebura: A Bigtable/MapReduce-Based Cloud Infrastructure for Effectively and Efficiently Managing Large-Scale Sensor Networks. Data Management in Cloud, Grid and P2P Systems

Lecture Notes in Computer Science Volume 7450, 2012, pp 25-36, Elsevier.

Byunggu Yu, Ranjan Sen, and Dong Hyun Jeong, "An Integrated Framework for Managing Sensor Data Uncertainty using Cloud Computing", *Information Systems*, Vol 38(8), pp. 1252-1268, 2013, Elsevier (doi:10.1126/ j.is.2011.12.003. As of April 25, 2012, ranked 14th: most popular Information Systems paper over the last 90 days, Elsevier)

Sherali Zeadally, Byunggu Yu, Dong Jeong, and Lily R. Liang, *Detecting Insider Threats: Solutions and Trends*, *Information Security Journal: A Global Perspective*, Vol 21(4), pp. 183-192, 2012, Taylor & Francis.

Pradeep Behera, Byunggu Yu, Juan Ramirez Rochac, *A New Sensor Technology for Sewer Flow Monitoring*, *World Environmental & Water Resources Congress*, Technical Sessions II-867, May 22-26, 2011, ASCE-EWRI.

Byunggu Yu, Pradeep Behera, Juan F. Ramirez Rochac, Seon Ho Kim, and Dong Jeong, *Transformative Sensor Technology for Urban Runoff Monitoring*, *NSF CMMI Research and Innovation Conference – Engineering for Sustainability and Prosperity*, 2011, NSF.

Byunggu Yu, Pradeep K. Behera, and Juan F. Ramirez Rochac. *Advanced sensor-computer technology for urban runoff monitoring*, *SPIE Conference on Sensors and Smart Structures Technologies, NSF Special Section*, Vol. 7981 (chair: Dr. Masayoshi Tomizuka, UC Berkeley), 2011, SPIE.

Juan F Ramirez Rochac, Lily Liang, Byunggu Yu, and Zhao Lu. *An Adaptive Fuzzy Classifier Approach to Edge Detection in Latent Fingerprint Images*, *ICTAI Internal Conference on Tools with Artificial Intelligence*, 2010, IEEE.

Kunhee Choi, Young Hoon Kwak, Byunggu Yu. *Quantitative Model for Determining Incentive/Discintive Amounts through Schedule Simulations*, *WSC Winter Simulation Conference*, IEEE.

Byunggu Yu, Pradeep K. Behera, Seon Ho Kim, Juan F. Ramirez Rochac, and Travis Branham. *Environmental Urban Runoff Monitoring*, *SPIE Conference on Sensors and Smart Structures Technologies, NSF Special Section*, Vol. 7647, 764748, March 2010, SPIE. doi:10.1117/12.847308.

Seon Ho Kim, Sakire Arslan Ay, Byunggu Yu, Roger Zimmermann. *Vector Model in Support of Versatile Georeferenced Video Search*, *ACM Multimedia Systems (ACM SIGMM's MMSys 2010)*, pp. 235-246, Feb. 2010, ACM.

Byunggu Yu, *Database Fundamentals, The Handbook of Technology Management*, Ed: Hossein Bidgoli, ISBN 978-0-470-24949-9, Vol 3, pp. 224-241, 2010, John Wiley & Sons.

Seon Ho Kim, Sakire Arslan Ay, Byunggu Yu, and Roger Zimmermann, *Vector Model in Support of Versatile Georeferenced Video Search*, accepted as a full technical paper to appear in *ACM Multimedia Systems Conference, ACM SIGMM's MMSys*, Feb. 2010, ACM

Seon Ho Kim, Byunggu Yu, and Jae-young Chang, *Zoned-Partitioning of Tree-Like Access Methods*, *Journal of Information Systems*, Vol. 33, Issue 3, pp. 315-331, 2008, Elsevier.

Shayma Alkobaisi, Wan D. Bae, Seon Ho Kim, and Byunggu Yu. *MBR Models for Uncertainty Regions of Moving Objects*. *DASFAA Database Systems for Advanced Applications, LNCS Lecture Notes in Computer Science*, Vol. 4947, pp. 126-140, March 2008, Springer-Verlag.

Byunggu Yu and Thomas Bailey. *Processing Partially Specified Queries over High-Dimensional Databases*. *DKE Data & Knowledge Engineering*, Vol. 62, Issue 1, pp. 177-197, 2007, Elsevier. doi:10.1016/j.datak.2006.08.001

Byunggu Yu, Thomas Bailey, and Ratko Orlandic. *Estimating the Performance of Multidimensional Access Methods based on Non-Overlapping Regions*. *IJIS International Journal of Intelligent Systems*, Vol. 22, pp. 1-19, 2007, Wiley. doi:10.1002/int.20200

Byunggu Yu, Seon Ho Kim, and Jaeyoung Chang. An Efficient Storage Technique of Hierarchical Index Structures in Multi-zoned Disk Environments. *Journal of Korea Information Science Society: Database*, Vol. 34, No. 4, pp. 95-107, August 2007.

Byunggu Yu and Ruben Gamboa. Spatio-Temporal Portals for Continuously Changing Network Nodes. *Encyclopedia of Portal Technology and Applications*, pp. 947-952, 2007, Idea Group Ref.

Byunggu Yu, Seon Ho Kim, Shayma Alkobaisi, Wan D. Bae, and Thomas Bailey. The Tornado Model: Uncertainty Model for Continuously Changing Data. *DASFAA Database Systems for Advanced Applications*, LNCS Lecture Notes in Computer Science, Vol. 4443, pp. 624-636, April 2007, Springer-Verlag.

Byunggu Yu and Ratko Orlandic. Chapter XVIII: Indexing Regional Objects in High-Dimensional Spaces. *Advanced Topics in Database Research*, Vol. 5, pp. 348-372, 2006, Idea Group Publishing.

Byunggu Yu and Seon Ho Kim. Interpolating and Using Most Likely Trajectories in Moving-Objects Databases. *DEXA Database and Expert Systems Applications*, LNCS Lecture Notes in Computer Science, Vol. 4080, pp. 718-727, 2006, Springer-Verlag.

Byunggu Yu. A Spatiotemporal Uncertainty Model of Degree 1.5 for Continuously Changing Data Objects. *Proceedings of ACM SIGAPP SAC, Symposium on Applied Computing, Mobile Computing and Applications*, pp. 1150-1155, 2006, ACM.

Byunggu Yu and S.H. Kim. An Efficient Zoning Technique for Multi-Dimensional Access Methods. In: *Proceedings of VLDB Workshop on Trends in Enterprise Application Architecture, 2005* & In: *post-conference LNCS Lecture Notes in Computer Science*, Vol. 3888, pp. 129-143, 2006, Springer-Verlag.

Ratko Orlandic and Byunggu Yu. Scalable QSF-Trees: Retrieving Regional Objects in High-Dimensional Spaces. *JDM Journal of Database*

Management, Vol. 15, No.3, pp. 45-59, 2005, Idea Group Publishing.

Byunggu Yu. Adaptive query processing in point-transformation schemes. *DEXA Database and Expert Systems Applications*, LNCS Lecture Notes in Computer Science, Vol. 3588, pp. 197-206, 2005, Springer-Verlag.

Byunggu Yu. A Query System for Spatiotemporal Database Applications. *Proceedings of IEEE 18th Int. Conf. on Systems Engineering*, pp. 28-33, 2005, IEEE.

Byunggu Yu, S.D. Prager, and Thomas Bailey. The isosceles-triangle uncertainty model: A spatiotemporal uncertainty model for continuously changing data. Gold (Eds.), *Workshop on Dynamic & Multi-Dimensional GIS*, International Society for Photogrammetry and Remote Sensing, Bi-Annual No. XXXVI(2/W29), pp. 179-183, 2005, The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, UK.

Byunggu Yu, Seonho Kim, Thomas Bailey, and Ruben Gamboa. Curve-Based Representation of Moving Object Trajectories. *Proceedings of IEEE IDEAS International Database Engineering and Applications*, pp. 419-425, 2004, IEEE.

Bonggi Jun, Bonghee Hong, and Byunggu Yu. Dynamic Splitting Policies of the Adaptive 3DR-tree for Indexing Continuously Moving Objects. *DEXA International Conference on Database and Expert Systems Applications*, LNCS Lecture Notes in Computer Science, Vol. 2736, pp. 308-317, 2003, Springer-Verlag.

Dong Hyun Kim, Bong Hee Hong, Byunggu Yu, and Eun Suk Hong. Validation-based Reprocessing Scheme for Updating Spatial Data in Mobile Computing Environments. *Proceedings of IEEE AINA International Conference on Advanced Information Networking and Applications*, pp. 211-214, 2003, IEEE.

Byunggu Yu, Thomas Bailey, Ratko Orlandic, and Jothi Somavaram. *KDB_{KD}-Tree: A Compact KDB-Tree Structure for Indexing Multidimensional Data*.

Proceedings of IEEE ITCC International Conference on Information Technology: Coding and Computing, pp. 676-680, 2003, IEEE.

Ratko Orlandic and Byunggu Yu. A Retrieval Technique for High-Dimensional Data and Partially Specified Queries. DKE Data & Knowledge Engineering, Vol. 42, No. 1, pp. 1-21, 2002, Elsevier.

Ratko Orlandic and Byunggu Yu. Inverted-Space Storage Organization for Persistent Data of Very High Dimensionality. Proceedings IEEE ITCC International Conference on Information Technology: Coding and Computing, pp. 616-621, 2001, IEEE.

Ratko Orlandic and Byunggu Yu. Implementing KDB-Trees to Support High-Dimensional Data. Proceedings of IEEE IDEAS International Database Engineering and Applications Symposium, pp. 58-67, 2001, IEEE.

Byunggu Yu and Ratko Orlandic. Object and Query Transformation: Supporting Multi-Dimensional Queries in Transactional Systems. Proceedings of ACM CIKM International Conference on Information and Knowledge Management, pp. 141-149, 2000, ACM.

Ratko Orlandic and Byunggu Yu. A Study of MBR-Based Spatial Access Methods: How Well They Perform in High-Dimensional Spaces. Proceedings of IEEE IDEAS International Database Engineering and Applications Symposium, pp. 306-315, 2000, IEEE.

Byunggu Yu, Ratko Orlandic, and Martha Evens. An Efficient and Scalable Spatial Access Method: Simple QSF-trees. Proceedings ACM CIKM International Conference on Information and Knowledge Management, pp. 5-14, 1999, ACM.

Byunggu Yu and Martha Evens. Cognitive Issues in Searching Images with Visual Queries. Proceedings of the SPIE 27th AIPR Advances in Computer-Assisted Recognition, Vol. 3584, pp. 162-173, 1998, SPIE.

Byunggu Yu, Soo Chan Hwang, and Jong Hoo Back. A Spatial Database Search Technique for Moving Reference Objects. Journal of Institute of Electronics Engineering of Korea, Vol. 35-C(1), pp. 25-33, ISSN 1226-5853, 1998, IEEK press.

Refereed – More

Pradip Peter Dey, Mohammad Amin, Arun Datta, Byunggu Yu, Hassan Badkoobehi, Bhaskar Raj Sinha. A Layered Architecture for Language Processing, Proceedings of International Conference on Computing, Advanced Computing Research Society, 2010.

Pradip Peter Dey, Arun Datta, Mohammad Amin, Thomas Gatton, Alireza Farahani, and Byunggu Yu. A Distributed Preprocessor System. Proceedings of National Conference on Convergence of Computer and Information Engineering, PSG College of Technology, India.

Byunggu Yu and S.H. Kim. Zoning Multidimensional Access Methods for Analytical Database Applications. Proceedings of ICCSA Intl. Conf. on Computer Sci. and its Applications, pp. 191-196, 2005, US Education.

Steven D. Prager and Byunggu Yu. Contextualized Probability for Approximation of Spatiotemporal Data Distribution. Proceedings of ISAS/CITSA International Joint Conference on Information Systems Analysis and Synthesis and on Cybernetics and Information Technologies, Systems and Applications, pp. 318-322 (in top 0.1 papers), 2005, IIS.

Byunggu Yu. The Dynamic QSF-Tree: An Access Method for Highly Dynamic Sets of High-Dimensional Regional Objects. Proceedings of ICCSA Intl. Conf. on Computer Sci. and its Applications, pp. 267-272, 2003, US Education.

Dehua Zhao, Byunggu Yu, Dan Randolph, and Bong Hee Hong. Relational Geographic Databases. Proceedings of Systematics, Cybernetics, and Informatics, Vol. VI, pp. 95-100 (the best student paper from the session), 2003, IIS.

Seong-Do Chi, Young Kwang Kim, Byunggu Yu, S.H. Chae, and G.S. Choi. A Role of Discrete Event Modeling for Advanced Traveler Information Systems. Proceedings of AIS International Conference on Artificial Intelligence Systems, pp. 37-43, 1996, AIS.

Byunggu Yu and Soo Chan Hwang. A New Dynamic Index Technique for Spatial Data: 2POR-trees. Proceedings of KISS Korea Information Science Society, Vol. 23, No. 2, pp. 247-250, 1996, KISS.

Byunggu Yu and Soo Chan Hwang. A Study of Realtime Database Search Techniques for Moving Objects. Journal of the EITE Electronics, Information, and Telecommunication Engineering (Korean Journal), Vol. 1, No. 2, pp. 161-170, 1995, Hangkong University Press.

Seong-Do Chi, Young Kwang Kim, Ja Oak Lee, Byunggu Yu, and T.H. Cho. Using the Modeling and Simulation to Develop the Traffic Route Guidance System. Proceedings of the MODSIM International Conference on Modeling and Simulation, pp. 319-324, 1995.

Byunggu Yu. A Realtime Search Mechanism for Continuous Moving Objects in a Spatial Databases. Proceedings of the 1st Human-Tech Research Paper (Thesis) Competition, (one of the best 3, Gold Prize), Samsung Elec. Co.

Technical Reports and Dissertations

Seon Ho Kim, Sakire Arslan Ay, Byunggu Yu, and Roger Zimmermann, Vector Model in Support of Versatile Georeferenced Video Search, Student Author: Sakire Arslan Ay, Number of Pages: 12, USC Technical Report USC-CS 09-912, University of Southern California, 2009.

Byunggu Yu, A Family of Scalable Spatial Access Methods for High-Dimensional Data, Ph.D. Dissertation, Illinois Institute of Technology, Chicago, IL, 2000.

Byunggu Yu, Dynamic Index Techniques for Spatial Databases, M.S. Dissertation, Hangkong University, Korea, 1996.

Byunggu Yu, Realtime Search Techniques for Moving Objects, B.S. Research, Hangkong University, Korea, 1994.

Selected Technical Proposals

Dr. Byunggu Yu, Dr. Pradeep Behera, Dr. Seon Ho Kim, and Dr. Paul Cotae, Environmental Urban Runoff Monitoring, Award NSF-CMMI-0940393, NSF, National Science Foundation, \$100,000, July 1, 2009 – Dec 31, 2010, Funded.

Dr. Byunggu Yu and Dr. Pradeep Behera, Application of Spatiotemporal Informatics to Water Quality, Water Resource Research Institute, under Grant 6F4200 from Federal USDO/US Geological Survey, \$30,000/\$15,000 from WRRI, Phase II: June 2009- May 2010, Funded.

Dr. Byunggu Yu and Dr. Pradeep Behera, Application of Spatiotemporal Informatics to Water Quality, Water Resource Research Institute, under Grant 6F4200 from Federal USDO/US Geological Survey, \$30,000/\$15,000 from WRRI, Phase I: June 2008-May2009, Funded.

Dr. Byunggu Yu, Dr. Seon Ho Kim, SPOT-SQL, Sun Microsystems. SPOT-SQL One Phase I: 3 SPOT developer packages w/ 9 SPOTs and three developer software at about \$1,857 and technical support; collaboration with Sun scientists in Java DB and SPOT research. Funded for on-going effort.

Dr. Byunggu Yu, Multi-Layer Spatial Access Methods, Informix Software, Inc., \$222,250.00, 2001 – 2004, Informix Software, Inc., Informix S/W, Technical Supports, and Training Award, 2001.

Dr. Byunggu Yu, Towards Processing Complex Spatial Queries, NSF EPSCoR NSFLOC4304, \$33,028.97, 2001 – 2003, Funded.

Dr. Byunggu Yu, Co-PIs: Dr. Ruben Gamboa and Dr. Thomas Bailey, A Database Server for Moving Object Trajectories, NSF 04-500, IIS, IDM, Rated "Competitive" by NSF panel but will not be funded.

Dr. Byunggu Yu, A Scalable Database Server for Moving Object Trajectories, NSF 02-111, IIS, IDM, Rated "Competitive" by NSF panel but will not be funded.

Dr. Seon Ho Kim, Dr. Pradeep Behera, and Dr. Byunggu Yu, Development of a Fast Optimization Technique Using Interactive Spatial Join for GIS Applications in Water Resources, under Grant 6F4200 from Federal USDO/US Geological Survey,

\$30,000/\$15,000 from WRRRI, Phase I: June 2009-May 2010, Funded.

Dr. Ronald Uhlig (contact person), Dr. Ali Farahani, Dr. Byunggu Yu, Dr. Feodor Vainstein, Dr. Shekar Viswana, Dr. Howard Evans (School Dean), Achieving Compelling Student Comprehension of Complex Information Structures, National University, \$19,000 in cash and \$49,000 in technology for 2007-2008 AY, HP Higher Ed. Grant ID 1896669. Funded.

INDUSTRIAL RESEARCH COMPETITION, COMMERCIALIZED

Byunggu Yu. A Realtime Search Mechanism for Continuous Moving Objects in a Spatial Databases. Proceedings of the 1st Human-Tech Research Paper (Thesis) Competition, (one of the best 3, Gold Prize), Samsung Elec. Co., Commercialized, also a property of Korea Defense Ministry (Air Force).

TEACHING EXPERIENCE AND CAPABILITY

Google Bigtable / Hadoop HBase, Hadoop MapReduce (Advanced DB, 2012S).

Databases

- Database Fundamentals
- Advanced Database Courses
- Database Administration and Management

Database Management Systems – Design and Implementation

High-dimensional Databases and Access Methods

Big Data Modeling, Management, and Analytics

Spatial and Temporal Databases

Database Applications

Operating Systems

- Operating Systems Fundamentals
- Operating System Design

Advanced Operating Systems
Operating System Kernel Projects

POSIX, Unix, and System Programming

Numerical Analysis and Scientific Programming

Software Architecture and Engineering
The Unified Modeling Language
Secure Software Engineering

System Security and Protection

Information Assurance

Mobile Applications/Computing

Cloud Computing

Smart Sensor Technology
Sun SPOT

Imote2 (UIUC Enhanced)

Graduate Advisees:

Juan Francisco Ramirez Rochac (MS), Univ. of the District of Columbia – Advisor (2008-2010)

Anuja K. Rasane (MS), Univ. of Wyoming – Committee Member (2004);

Chang-Oan (Chris) Sung (PhD), Univ. of Wyoming – Committee Member (2004)

Jaspal Singh (MS), Univ. of Wyoming – Committee Member (2003);

Cesar A. Marron (MS), Univ. of Wyoming – Advisor (2002);

Dehua Zhao (MS), Univ. of Wyoming – Advisor (2002);

Jianxin Chen (MS), Univ. of Wyoming – Committee Member (2001);

Jothi Somavaram (MS), Univ. of Wyoming – Advisor, Co-Chair (2001);

Jess Lacy (MS), Univ. of Wyoming – Committee Member (2000);

Liqiong She (MS), Univ. of Wyoming – Committee Member (2000);

Shayma Alkobaisi (PhD) and Wan D. Bae (PhD), Univ. of Denver – External Advisor (2005-2007)

HONORS

Dr. Byunggu Yu, Strongly Recommended by the Dean and Faculty Committees for an Early Promotion to Tenured Full Professor as an outstanding member, Oct., 2011.

Dr. Byunggu Yu, Outstanding Contribution to Research, School of Engineering and Applied Sciences, University of the District of Columbia, 2010.

Dr. Byunggu Yu, Outstanding Departmental Leadership and Superior Contribution to the 2008 ABET Accreditation Visit for Computer Science, School of Engineering and Applied Sciences, University of the District of Columbia, 2008.

Dr. Byunggu Yu, National University Presidential Research Award. 2007.

Ratko Orlandic and Byunggu Yu, "Scalable QSF-Trees: Retrieving Regional Objects in High-Dimensional Spaces," Journal of Database Management, Ideas Group Publishing Vol. 15, No.3, pp. 45-59, 2004 selected as one of the best JDM papers of the last two years.

1999, Best Student Paper Award, Department of Computer Science, Illinois Institute of Technology, Chicago, IL.

1995/1996, Gold-Prize, 1st Human-Tech Research Paper Competition, Samsung Elec. Co., Seoul, Korea (\$6,000 prize + fully supported M.S. degree & VIP Europe Tour package).

1995/1996, One of the Best B.S. Graduates invited to the President's House by a former President of Korea, Kim, Young-Sam.

OTHER PROFESSIONAL SERVICES

Elected Governance Committee Member, SURAgrid, 2012 – 2014.

Founding Member, Cloud-computing Options Working Group (COWG), SURAgrid, 2012 – present.

Reviewer, DKE, Data and Knowledge Engineering, Elsevier, 2011 – present.

Reviewer, Information Systems, Elsevier, 2012 – present.	Conference Program Committee Member, ICCSA'05'06
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