Ilchul Yoon

CONTACT
INFORMATION

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Department of Computer Science
University of Maryland
College Park, MD 20742 USA

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RESEARCH
INTERESTS

Software Engineering (Empirical Software Engineering, Collaborative Software Testing, Software Process)
Distributed High-Performance Computing

EDUCATION

University of Maryland, College Park, Maryland USA

Ph.D. in Computer Science

- December, 2010
- Advisor: Dr. Alan Sussman
- Dissertation Title: "Compatibility Testing for Component-Based Systems"

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

M.S., Computer Science, August, 2001 (Advisor: Dr. Doo-Hwan Bae)

Sogang University, Seoul, Republic of Korea

B.E., Computer Science, February, 1999 (Magna Cum Laude)

EXPERIENCE

Department of Computer Science, University of Maryland, College Park, MD

Instructor   *Aug. 2017 - Present*

State University of New York - Korea, Incheon, South Korea
Assistant Professor   *Aug. 2012 - Jul. 2017*
Director Faculty of ICT Consilience Creative Program   *Nov. 2013 - Feb. 2017*

Stony Brook University, Stony Brook, NY
Research Assistant Professor   *Aug. 2012 - Jul. 2017*

Center of Excellence in Wireless & Information Technology, Incheon, South Korea
Senior Research Scientist   *Aug. 2012 - May 2015*

Robert H. Smith School of Business, University of Maryland, College Park, MD
Tyser Teaching Fellow   *Aug. 2011 - Jul. 2012*

Department of Computer Science, University of Maryland, College Park, MD

Post-Doctoral Research Associate   *Jan. 2011 - May 2011*
- Investigated methods to support community-driven software compatibility testing

Department of Computer Science, University of Maryland, College Park, MD

Graduate Research Assistant   *Aug. 2004 - Dec. 2010*
- Developed an effective framework that supports software compatibility testing, utilizing multiple resources
- Developed a light-weight runtime environment that facilitates composing and executing coupled memory parallel components on the Grid

- Developed an efficient framework for coupling distributed memory parallel components that enables efficient communication in the presence of complex data distributions

Graduate Teaching Assistant   *Aug. 2002 - Aug. 2004*

Electronics and Telecommunications Research Institute (ETRI), Daejeon, Republic of Korea

Software Researcher   *Sep. 2001 - Jul. 2002*
- Designed and implemented a technique to support simultaneous round-trip engineering (SRE) between source code and UML model as a part of a component-based software development environment (written in Java)

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

Graduate Research/Teaching Assistant   *March 1999 - August 2001*
- Developed a process-centered software engineering environment that provides multi-level process modeling and employs a high-level Petri net as an underlying formalism. (written in Java)
- Developed an automated environment to support tailoring software process and to validate the conformance of the tailored process to the organizational-level software process. (written in Java)

PUBLICATIONS, PATENTS, AND PRESENTATIONS

International Publications

1. Doohwan Kim, Jang-Eui Hong, Ilchul Yoon, and Sang-Ho Lee, *"Code Refactoring Techniques for Reducing Energy Consumption in Embedded Computing Environment"*, Cluster Computing, Nov. 2016

2. Teng Long, Ilchul Yoon, Adam Porter, Atif Memon, and Alan Sussman, *"Coordinated Collaborative Testing of Shared Software Components"*, IEEE International Conference on Software Testing, Verification and Validation (ICST), Apr. 2016

3. Teng Long, Ilchul Yoon, Atif Memon, Adam Porter, and Alan Sussman, *"Enabling Collaborative Testing Across Shared Software Components"*, International ACM Sigsoft Symposium on Component-Based Software Engineering (CBSE), pages 55-64, Jun. 2014

4. Teng Long, Ilchul Yoon, Alan Sussman, Adam Porter, and Atif Memon, *"Scalable System Environment Caching and Sharing for Distributed Virtual Machine"*, High-Performance Grid and Cloud Computing Workshop (HPGC) in conjunction with International Parallel and Distributed Processing Symposium (IPDPS), May 2014

5. Ilchul Yoon, Alan Sussman, Atif Memon, Adam Porter, *"Testing Component Compatibility in Evolving Configurations"*, Information and Software Technology, Vol.55, No.2, pages 445-458, Feb. 2013

6. Xianshu Jin, Priyanka Deshpande, Ilchul Yoon, Seung Eui Yang, Sunyoung Han, *"An Approach for QoE-based Media Sharing in DLNA Home Network"*, IEEE International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT), Nov. 2012

7. Xianshu Jin, Priyanka Deshpande, Seung Eui Yang, Ilchul Yoon, Sunyoung Han, *"A Study of Efficient DLNA Media Sharing using SCTP"* (Poster), IEEE International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT), Nov. 2012

8. Teng Long, Ilchul Yoon, Adam Porter, Alan Sussman and Atif Memon, *"Overlap and Synergy in Testing Software Components Across Loosely-Coupled Communities"*, IEEE International Symposium on Software Reliability Engineering (ISSRE), Nov. 2012

9. Ilchul Yoon, Alan Sussman, Atif Memon, Adam Porter, *"Towards Incremental Software Compatibility Testing"*, International ACM SIGSOFT Symposium on Component Based Software Engineering (CBSE), pages 119-128, Jun. 2011

10. Ilchul Yoon, *"Compatibility Testing for Component-based Systems"*, Ph.D. Thesis, Dec. 2010

11. Il-Chul Yoon, Alan Sussman, Atif Memon, Adam Porter, *"Prioritizing Component Compatibility Tests via User Preferences"*, International Conference on Software Maintenance (ICSM), pages 29-38, Sep. 2009

12. Il-Chul Yoon, Alan Sussman, Atif Memon, Adam Porter, *"Effective and Scalable Software Compatibility Testing"*, International Symposium on Software Testing and Analysis (ISSTA), pages 63-74, Jul. 2008 (Merit-based Student Travel Award from SIGSOFT)

13. Il-Chul Yoon, Alan Sussman, Atif Memon, Adam Porter, *"Direct-Dependency-based Software Compatibility Testing"*, IEEE/ACM International Conference on Software Engineering (ASE), pages 409-412, Nov. 2007

14. Il-Chul Yoon, Alan Sussman, Adam Porter, *"And Away We Go: Understanding The Complexity of Launching Complex HPCA Applications"*, International Workshop on Software Engineering for High Performance Computing System Applications (SE-HPCS), May 2005

15. Yangjae Jeong, Il-Chul Yoon, Minjeong Kim, Woojin Lee and Gyusang Shin, *"An Implementation of the Tool Supporting Design Pattern and Maintaining Alteration of Design Model for EJB Component Design"*, International Conference on Software Engineering Research and Practice (SERP), Jun. 2002

16. Il-Chul Yoon, Sang-Yoon Min, Doo-Hwan Bae, *"Tailoring and Verifying Software Process"*, IEEE Asia-Pacific Software Engineering Conference (APSEC), Dec. 2001

17. Il-Chul Yoon, Hyung-Ho Kim, Cheong Yoon, Doo-Hwan Bae, *"Reliable Transaction Design in MTS"*, IEEE International Computer Software and Applications Conference (COMPSAC), Oct. 2000

18. Il-Chul Yoon, *"Tailoring and verifying Software Process"*, MS Thesis, Aug. 2001

Domestic Publications

1. Youlim Jung, Youngmin Baek, Ilchul Yoon, and Doo-Hwan Bae, *"Analysis of Multi-Agent Systems Meta Modeling Approaches for Systems-of-Systems Modeling"*, 2016 Winter Conference of Korean Institute of Information Scientists and Engineers (KIISE), Dec. 2016 (*will be presented in Dec.*)

2. Anvika Anvika and Ilchul Yoon, *"Pair-wise Component Compatibility Testing"*, 2016 Korea Conference on Software Engineering (KCSE), Jan. 2016

3. Feng Jin, Ohsung Kwon, and Ilchul Yoon, *"Analysis of UPnP-based Sensor Control Technologies"*, 2015 Spring Conference of Korean Society for Internet Information (KSII), May 2015

4. Delvison Castillo, Ohsung Kwon, and Ilchul Yoon, *"Investigation of UPnP Media Steaming Over SCTP"*, 2015 Spring Conference of Korean Society for Internet Information (KSII), May 2015

5. Feng Jin, Mijung Kim, and Ilchul Yoon, *"Comparative Analysis of Methods to Support Dynamic Adaptive Streaming over HTTP"*, 2014 Fall Conference of Korea Institute of Information and Communication Engineering (KIICE), Oct. 2014

6. Mijung Kim, Feng Jin, and Ilchul Yoon, *"A Visualization Technique of Inter-Device Packet Exchanges to Test DLNA Device Interoperability"*, 2014 Fall Conference of Korea Institute of Information and Communication Engineering (KIICE), Oct. 2014

7. Mijung Kim, Feng Jin, Xianshu Jin, and Ilchul Yoon, *"Embracing Device Characteristics for Dynamic Adaptive Video Streaming"*, 2014 Spring Conference of Korea Institute of Information and Communication Engineering (KIICE), May 2014

8. Xian Shu Jin, Priyanka Deshpande, Seung-Eui Yang, Ilchul Yoon, and Sunyoung Han, *"A Study on the Dynamic Adaptive Streaming in DLNA"*, 2013 Fall Conference of Korea Information and Communications Society (KICS), Nov. 2013

9. Xian Shu Jin, Priyanka Deshpande, Seung-Eui Yang, Ilchul Yoon , and Sunyoung Han, *"A Comparative Study of SCTP and TCP for Reliable DLNA Multimedia Data Transfer"*, 2013 Summer Conference of Korea Information and Communications Society (KICS), Jun. 2013

10. Yangjae Jeong, Il-Chul Yoon, Minjeong Kim, Woojin Lee and Gyusang Shin, *"A Comparative Study of SCTP and TCP for Reliable DLNA Multimedia Data Transfer"*, 2013 Summer Conference of Korea Information and Communications Society (KICS), Jun. 2013

11. Jang-Eui Hong, Ilchul Yoon, and Doo-Hwan Bae, *"Hierarchical Specification and Verification of Requirements using An Object-Oriented Petri Net"*, Journal of Korean Institute of Information Scientists and Engineers (KIISE) : Software and Applications, Vol. 27, No. 2, pages 157-167, Feb. 2000.

Domestic Patents (Registered) (in Korean)

1. Xian Shu Jin, Ilchul Yoon, Keun-Myoung Lee, *"METHOD FOR PROVIDING ADAPTIVE STREAMING"*, Korean Patent (#10-1590707), Jan. 26, 2016

2. Xian Shu Jin, Ilchul Yoon, Keun-Myoung Lee, *"LINE SHARER SUPPORTING DLNA STREAMING BASED ON SCTP"*, Korean Patent #10-1526804, Jun. 01, 2015

3. Seung-Eui Yan, Xian Shu Jin, Ilchul Yoon, Keun-Myoung Lee, *"LINE SHARER"*, Korean Patent #10-1454999, Oct. 20, 2014

4. Ilchul Yoon, Minjeong Kim, Yangjae Jeong, *"APPARATUS AND METHOD TO SUPPORT SIMULTANEOUS ROUND-TRIP ENGINEERING FOR MAINTAINING CONSISTENCY BETWEEN SOURCE CODE AND CORRESPONDING DESIGN MODEL"*, Korean Patent #1004566230000, Nov. 2004

Domestic Patents (Under Evaluation) (in Korean)

1. Ilchul Yoon, Mijung Kim, *"DLNA NETWORK SYSTEM SUPPORTING COMMUNICATION SECURITY"*, Korean Patent (Submission #10-2015-0076655), May 29, 2015

2. Ilchul Yoon, Feng Jin, Ohsung Kwon, *"OPEN ROUTER FOR REMOTELY CONNECTING AND CONTROLLING SENSOR NETWORK AND DIGITAL LIVING NETWORK ALLIANCE DEVICE"*, Korean Patent (Submission #10-2015-0076654), May 29, 2015

Talks

1. *"Energy-Efficient Mobile Software Development"*, SUNY Korea (CSE595 – Sustainable Energy: Policies and Technologies), May 2016

2. *"Towards Collaborative Software Testing"*, Sogang University, Jun. 2015

3. *"An Approach to Support Remote Interoperability Testing of DLNA Devices"* (Tutorial), 2014 Fall Conference of Korea Institute of Information and Communication Engineering (KIICE), Oct. 2014

4. *"An Approach to Support Collaborative Software Testing"*, Korea Advanced Institute of Science and Technology, Sep. 2014

5. *"Agile Software Development"*, SUNY Korea (CSE516 – Science for Society), Apr. 2014

6. *"Interaction Test Design and Its Applications (Tutorial)"*, Korea Conference on Software Engineering (KCSE 2013), Jan. 2013

7. *"Researches in Software Engineering"*, SUNY Korea CSE600, Nov. 2012 / Aug. 2013

8. *"An Automated Framework to Test Software Compatibility"*, International Conference on Software Testing, Verification, and Validation (Doctoral Symposium), Apr. 2009

9. *"Automating Software Compatibility Testing"*, International Symposium on Software Testing and Analysis (Doctoral Symposium), Jul. 2008

10. *"Automated Software Compatibility Testing"*, University of Maryland Software Day, Jan. 2008

11. *"Direct-Dependency-based Software Compatibility Testing"*, SoftChat (Computer Science Department), Oct. 2007

Other Publications

1. Ilchul Yoon, Alan Sussman, *"The Rachet v1.0 Developer's Guide"*, Department of Computer Science, University of Maryland, College Park. Nov. 2010

2. Norman Lo, Ilchul Yoon, Jae-Yong Lee, Christian Hansen, Henrique Andrade, Guy Edjlali, Alan Sussman, *"A Manual for InterComm Version 1.6"*, Department of Computer Science, University of Maryland, College Park. Jun. 2007

3. Ilchul Yoon, Norman Lo, Alan Sussman, *"High-Performance Computing Application Launching Environment Manual Version 1.0"*, Department of Computer Science, University of Maryland, College Park. Oct. 2006

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TEACHING
ACTIVITIES

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State University of New York, Korea
- *Advanced Topic in Computer Science - Software Engineering (CSE592)*, Spr. 2016
- *Foundations of Computer Science (CSE215)*, Spr. 2015 / Fall 2014
- *Systems Fundamentals I (CSE220)*, **Fall 2016**
- *Theory of Database Systems (CSE532)*, Spr. 2015 / Fall 2013
- *Computer Architecture (CSE502)*, **Fall 2016** / Fall 2015 / Spr. 2014 / Fall 2012
- *Software Design and Analysis (CSE657)*, Spr. 2016 / Fall 2015 / Fall 2014

Robert H. Smith School of Business, University of Maryland, College Park
- *Developing Business Applications - in Visual Basic (BMGT302)*, Spr .2012 / Fall 2011
- *Database Systems (BMGT402)*, Spr. 2012 / Fall 2011

Department of Computer Science, University of Maryland, College Park
- Teaching Assistant - *Computer Systems Architecture (CMSC 411)*, Spring/Summer 2004, Spring/Fall 2003
- Teaching Assistant - *Computer Science I (C++, Basic Algorithms) (CMSC 114)*, Fall 2002

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GRANTS

New investigator Award
- Title: *Investigating Cooperative Software Testing Methods*
- Funding Agency: Korea-NRF under the Ministry of Science, ICT, and Future Planning
- Role: PI
- Amount: KRW 50,000,000 per year (∼$50,000 per year)
- Period: Jun. 01, 2013 – May 31, 2016 (3 years)

Knowledge and Technology Innovation Program
- Title: *Automatic, Remote Testing and Certification of DLNA Devices*
- Funding Agency: Ministry of Science, ICT, and Future Planning
- Role: Co-PI
- Amount: KRW 160,000,000 per year (∼$160,000 per year)
- Period: Jun. 01, 2012 – May 31, 2015 (3 years)

Global Convergence ATC Program
- Title: *Cryogenic heat treatment machine development with Micro/Nano Domain*
- Funding Agency: Ministry of Trade, Industry & Energy
- Role: Co-PI
- Amount: KRW 50,000,000 per year (∼$50,000 per year)
- Period: Jun. 01, 2014 – May 31, 2016 (2 years)

ICT Consilience Creative Program
- Funding Agency: Ministry of Science, ICT, and Future Planning
- Role: Director Faculty
- Amount: KRW 1,000,000,000 per year (Government portion) (∼$1,000,000 per year)

- Period: Aug. 01, 2011 – Dec. 31, 2020 (10 years)

<table>
<tr><td>HONORS AND
AWARDS</td><td>

Faculty Service Award
Department of Computer Science, State University of New York, Korea, Aug. 2014

Outstanding Contribution Award
DLNA (Digital Living Network Alliance), Mar. 2014

Merit-based Travel Awards
ACM SIGSOFT, Travel awards for attending ISSTA, Jun. 2008

Information and Telecommunication National Scholarship
Institute of Information Technology, Republic of Korea, 2002 – 2006

Merit-based Scholarship
University of Maryland, College Park, 2002 – 2004
Sogang University, 1993 – 1994, 1996 – 1999

Alpha Sigma Nu, National Jesuit Honor Society, 1998 - Present

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<tr><td>PROFESSIONAL
ACTIVITIES</td><td>

Services
- Director faculty, ICT Consilience Creative Program (Nov. 01, 2013 – Present)
- Member, Undergraduate program committee, SUNY-Korea (Jul. 2015 – Present)
- Member, Graduate admissions and recruiting committee, SUNY-Korea. (Jul. 2015 – Present)

Program Committee Member
- Korea Conference on Software Engineering (KCSE'17, KCSE'16, KCSE'15)
- Asia-Pacific Software Engineering Conference (APSEC'14)
- International Conference on Parallel and Distributed Systems (ICPADS'13)

Technical Reviewer
- Journal of Software Testing, Verification, and Reliability (Jan 2016)
- Journal of Systems and Software (May 2013)
- ACM/IEEE Conference for High Performance Computing, Networking, Storage and Analysis (SC'11, SC'10, SC'08)
- International Conference on Grid Computing (Grid'10,Grid'09)
- 8th USENIX Conference on File and Storage Technologies (FAST'10)
- Annual IEEE International Conference on High Performance Computing (HiPC'10, HiPC'09, HiPC'06)
- International Symposium on High Performance Distributed Computing (HPDC'09)
- IEEE International Symposium on Cluster Computing and the Grid (CCGrid'08)
- Workshop on Desktop Grids and Volunteer Computing Systems (PCGrid'08)
- International Conference on Parallel and Distributed Systems (ICPADS'07)
- International Symposium on Parallel and Distributed Processing and Applications (ISPA'07, ISPA'06)
- ACM International Conference on Supercomputing (ICS'06)

Other

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- Member of Industry Technology & Innovation Program Evaluation Committee in Korea Communications Agency