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EDUCATION

Ph.D., Computer Science, Iowa State University, Ames, Iowa, 2003

M.S., Computer Science, Iowa State University, Ames, Iowa, 1991

B.S., Computer Science, Korea University, Seoul, South Korea, 1989

RESEARCH INTERESTS

Formal methods (specification languages, specification and verification techniques, and tool support)

Programming (programming languages, formal semantics, and programming methodology)

PROFESSIONAL EXPERIENCE

Associate Professor, Computer Science, University of Texas at El Paso (UTEP), El Paso, Texas, 2009–present

Assistant Professor, Computer Science, UTEP, El Paso, Texas, 2003–2009

Senior member of Technical Staff, ETRI, Taejon, South Korea, 1997–2003

Member of Technical Staff, ETRI, Taejon, South Korea, 1995–1996

SELECTED PUBLICATIONS

Aditi Barua and Yoonsik Cheon. Finding Specifications of While Statements Using Patterns, *International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering*, December 12–14, 2013, Springer.

Yoonsik Cheon and Carmen Avila. Constructing Verifiably Correct Java Programs Using OCL and CleanJava, *International Conference on Software Engineering Research and Practice, Las Vegas, Nevada, July 22–25, 2013*, pages 231–237.

Yoonsik Cheon, Cesar Yeep, and Melisa Vela. The CleanJava Language for Functional Program Verification, *International Journal of Software Engineering*, 5(1):47–68, January 2012.

Carmen Avila and Yoonsik Cheon. Functional Verification of Class Invariants in CleanJava, *Innovations and Advances in Computer, Information, and Systems Sciences, and Engineering, Lecture Notes in Electrical Engineering*, volume 152, Springer-Verlag, August 2012, pages 1067–1076.

Pedro Flores and Yoonsik Cheon. PWiseGen: Generating Test Cases for Pairwise Testing Using Genetic Algorithms, *2011 IEEE International Conference on Computer Science and Automation Engineering (CSAE 2011), June 10–12, 2011, Shanghai, China*, pages 747–752, IEEE Computer Society.

Yoonsik Cheon, Cesar Yeep and Melisa Vela. CleanJava: A Formal Notation for Functional Program Verification, *ITNG 2011: 8th International Conference on Information Technology, April 11–13, 2011, Las Vegas, Nevada*, pages 221–226, IEEE Computer Society.

- Amritam Sarcar and Yoonsik Cheon. A New Eclipse-Based JML Compiler Built Using AST Merging, *Second World Congress on Software Engineering (WCSE 2010), December 19-20, 2010, Wuhan, China*, pages 287-292, IEEE Computer Society.
- Carmen Avila, Amritam Sarcar, Yoonsik Cheon, and Cesar Yeep. Runtime Constraint Checking Approaches for OCL, A Critical Comparison, *22nd International Conference on Software Engineering and Knowledge Engineering (SEKE 2010), July 1-3, 2010, San Francisco, CA*, pages 393-398.
- Yoonsik Cheon and Carmen Avila. Automating Java Program Testing Using OCL and AspectJ. *ITNG 2010: Seventh International Conference on Information Technology, April 12-14, 2010, Las Vegas, NV*, pages 1020-1025, IEEE Computer Society.
- Yoonsik Cheon, Carmen Avila, Steve Roach, and Cuauhtemoc Munoz. Checking Design Constraints at Run-time Using OCL and AspectJ, *International Journal of Software Engineering*, 2(3):5-28, December 2009.
- Yoonsik Cheon, Carmen Avila, Steve Roach, Cuauhtemoc Munoz, Neith Estrada, Valeria Fierro, and Jessica Romo. An Aspect-Based Approach to Checking Design Constraints at Run-time. In *ITNG 2009: 6th International Conference on Information Technology: New Generations, April 27-29, 2009, Las Vegas, NV*, pages 223-228, IEEE Computer Society.
- Yoonsik Cheon, Antonio Cortes, Martine Ceberio, and Gary T. Leavens. Integrating Random Testing with Constraints for Improved Efficiency and Diversity. In *Proceedings of SEKE 2008, The 20-th International Conference on Software Engineering and Knowledge Engineering, July 1-3, 2008, San Francisco, CA*, pages 861-866, July 2008.
- Carmen Avila, Guillermo Flores, Jr., and Yoonsik Cheon. A Library-Based Approach to Translating OCL Constraints to JML Assertions for Runtime Checking. In *International Conference on Software Engineering Research and Practice, July 14-17, 2008, Las Vegas, Nevada, U.S.A.*, pages 403-408, July 2008.
- Myoung Yee Kim and Yoonsik Cheon. A Fitness Function to Find Feasible Sequences of Method Calls for Evolutionary Testing of Object-Oriented Programs. In *International Conference on Software Testing, Verification, and Validation, Norway, April 9-11, 2008*, pages 537-540, IEEE Computer Society.
- Yoonsik Cheon. Abstraction in Assertion-Based Test Oracles. In *Proceedings of the Seventh International Conference on Quality Software, Portland, Oregon, USA, October 11-12, 2007*, pages 410-414, IEEE Computer Society.
- Yoonsik Cheon. Automated Random Testing to Detect Specification-Code Inconsistencies. *International Conference on Software Engineering Theory and Practice, Orlando, FL, July 9-12, 2007*, pages 112-119.
- Yoonsik Cheon and Carlos E. Rubio-Medrano. Random Test Data Generation for Java Classes Annotated with JML Specifications. *Proceedings of the 2007 International Conference on Software Engineering Research and Practice, Volume II, June 25-28, 2007, Las Vegas, Nevada*, pages 385-392.
- Yoonsik Cheon and Ashaveena Perumandla. Specifying and Checking Method Call Sequences of Java Programs. *Software Quality Journal*, 15(1):7-25, March 2007.
- Poonam Agarwal, Carlos E. Rubio-Medrano, Yoonsik Cheon, and Patricia J. Teller. A Formal Specification in JML of the Java Security Package. *International Conference on Systems, Computing Sciences and Software Engineering, December 4-14, 2006*.
- Yoonsik Cheon and Myoung Kim. A Fitness Function for Modular Evolutionary Testing of Object-Oriented Programs. In *Genetic and Evolutionary Computation Conference, Seattle, WA, USA, July 8-12, 2006*, pages 1952-1954, ACM Press, 2006.

- Lilian Burdy, Yoonsik Cheon, David R. Cok, Michael Ernst, Joe Kiniry, Gary T. Leavens, K. Rustan M. Leino, and Erik Poll. An Overview of JML Tools and Applications. *International Journal on Software Tools for Technology Transfer*, 7(3):212-232, June, 2005.
- Yoonsik Cheon, Gary T. Leavens, Murali Sitaraman, and Stephen Edwards. Model Variables: Cleanly Supporting Abstraction in Design By Contract. *Software—Practice and Experience*, 35(6):583–599, May, 2005.
- Gary T. Leavens, Yoonsik Cheon, Curtis Clifton, Clyde Ruby, and David R. Cok. How the Design of JML Accommodates Both Runtime Assertion Checking and Formal Verification. *Science of Computer Programming*, 55(1-3):185-208, March 2005.
- Yoonsik Cheon and Gary T. Leavens. A Contextual Interpretation of Undefinedness for Runtime Assertion Checking. In *AADEBUG 2005, Proceedings of the Sixth International Symposium on Automated and Analysis-Driven Debugging, Monterey, California, September 19–21, 2005*, pages 149-157. ACM Press, September 2005
- Yoonsik Cheon and Gary T. Leavens. A Simple and Practical Approach to Unit Testing: The JML and JUnit Way. In Boris Magnusson (ed.), *ECOOP 2002 – Object-Oriented Programming, 16th European Conference, Malaga, Spain, June 2002, Proceedings*. Volume 2374 of *Lecture Notes in Computer Science*, pages 231-255. Springer-Verlag, 2002.
- Yoonsik Cheon and Gary T. Leavens. A Runtime Assertion Checker for the Java Modeling Language (JML). In Hamid R. Arabnia and Youngsong Mun (eds.), *International Conference on Software Engineering Research and Practice (SERP '02), Las Vegas, Nevada*, pages 322-328. CSREA Press, June 2002.
- Yoonsik Cheon and Gary T. Leavens. A Quick Overview of Larch/C++. *Journal of Object-Oriented Programming*, 7(6):39-49, October 1994.
- Yoonsik Cheon and Gary T. Leavens. The Larch/Smalltalk Interface Specification Language. *ACM Transactions on Software Engineering and Methodology*, 3(3):221-253, July 1994.

GRANTS

- Integrating Functional Program Verification Techniques to Computer Science Programs, *National Science Foundation*, DUE-0837567, \$149,959, 05/15/2009–04/30/2013 (PI).
- Improving Dependability of Software through Rigorous Testing against Requirements, *CDSR/HPI, US Army SMDC, DoD*, \$115,878, 01/22/2008–01/22/2009 (PI).
- Collaborative Research: A JML Community Infrastructure—Revitalizing Tools and Documentation to Aid Formal Methods Research, *National Science Foundation*, CNS-0707874, \$100,000, 07/15/2007–07/14/2010 (PI)
- Training and Software Support for the Senior Design Course in Software Engineering at The University of Texas at El Paso, *Rockwell Collins*, \$20,000, June 2007 (Co-PI)
- Collaborative Research: Unification of Verification and Validation Methods for Software Systems, *National Science Foundation*, CNS-0509299, \$167,999, 09/01/2005–08/31/2008 (PI)
- Automated Testing of Object-Oriented Programs, *UTEP University Research Institute*, \$5,100, 09/2004–8/2005 (PI)

CERTIFICATIONS

- IEEE Certified Software Development Professional (CSDP), IEEE Computer Society

PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)

IEEE Computer Society

PROFESSIONAL ACTIVITIES

Editorial Board for International Journal on Advances in Software

Program committee for CFEM, STEV, ICSEA, ICSOFT, FTfJP, ACM SAC, OCL, SEKE, TAP, etc.

Journal referee for IEEE TSE, ASE, SP&E (2003), SoSyM, SCP, JOT, etc.

Conference referee for ECOOP, FSE, OOPSLA, etc.