

## Curriculum Vitae

### Hyunsook Do

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### Education

2007. Ph.D. Computer Science, University of Nebraska - Lincoln.

1994. M.S. Computer Science, Tokyo Institute of Technology.

1989. B.S. Computer Science, Sungshin Women's University.

### Professional Experience

September, 2015 - present. Associate Professor, Computer Science and Engineering, University of North Texas.

August, 2013 - August, 2015. Associate Professor, Computer Science, North Dakota State University.

August, 2013 - June, 2014. Visiting Scholar, Computer Science, Ewha Womans University, Seoul, S. Korea.

August, 2007 - July, 2013. Assistant Professor, Computer Science, North Dakota State University.

May, 2007 - July, 2007. Senior Research Associate, Computer Science and Engineering, University of Nebraska - Lincoln.

1997 - 1998. Senior Research Staff, Electronics and Telecommunication Research Institute (ETRI), Korea.

1989 - 1997. Research Staff, Electronics and Telecommunication Research Institute (ETRI), Korea (On leave from 1991 to 1993).

### Refereed Journal Papers

Hema Srikanth, Charitha Hettiarachchi, and Hyunsook Do, Requirements based test prioritization using risk factors: an industrial study, *Journal of Information and Software Technology*, vol. 69, 2016, pages 71-83.

Charitha Hettiarachchi, Hyunsook Do, and Byoungju Choi, Risk-based test case prioritization using a fuzzy expert system, *Journal of Information and Software Technology*, vol. 69, 2016, pages 1-15.

- Hyunsook Do and Md Hossain, An Efficient Regression Testing Approach for PHP Web Applications: A Controlled Experiment. *Journal of Software Testing, Verification, and Reliability*, 24:367385, 2014.
- Daniel Aceituna, Gursimran Walia, Hyunsook Do, and Seok-Won Lee, Model-based Requirements Verification Method: Conclusions from Two Controlled Experiments. *Journal of Information and Software Technology*, 2014.
- Aaron Marback, Hyunsook Do, Ke He, Samuel Kondamarri, and Dianxiang Xu, A Model-based Approach to Security Testing, *Journal of Software: Practice and Experience*, 2012.
- Hyunsook Do, Siavash Mirarab, Ladan Tahvildari, and Gregg Rothermel, The Effects of Time Constraints on Test Case Prioritization: A Series of Controlled Experiments. *IEEE Transactions on Software Engineering*, 36:(5), 2010, pages 593-617.
- Hyunsook Do and Gregg Rothermel, On the Use of Mutation Faults in Empirical Assessments of Test Case Prioritization Techniques, *IEEE Transactions on Software Engineering*, Volume 32, No. 9, September, 2006, pages 733-752.
- Hyunsook Do, Gregg Rothermel, and Alex Kinneer, Prioritizing JUnit Test Cases: An Empirical Assessment and Cost-Benefits Analysis, *Empirical Software Engineering: An International Journal*, Volume 11, No. 1, 2006, pages 33-70.
- Alex Orso, Hyunsook Do, Gregg Rothermel, Mary J. Harrold, and David S. Rosenblum, Using Component Metadata to Regression Test Component-Based Software, *Journal of Software Testing, Verification, and Reliability*, Volume 17, No. 2, December, 2007, pages 61-94.
- Hyunsook Do, Sebastian Elbaum, and Gregg Rothermel, Supporting Controlled Experimentation with Testing Techniques: An Infrastructure and its Potential Impact, *Empirical Software Engineering: An International Journal*, Volume 10, No. 4, 2005, pages 405-435.

## **Refereed Conference Papers**

- Jeff Anderson, Hyunsook Do, and Saeed Salem, Experience Report: Mining Test Results for Reasons Other Than Functional Correctness *IEEE International Symposium on Software Reliability Engineering (IS-SRE)*, November, 2015.
- Daniel Aceituna and Hyunsook Do, Exposing the Susceptibility of Off-Nominal Behaviors in Reactive System Requirements, *Requirements Engineering*, August, 2015.
- Jeff Anderson, Saeed Salem, and Hyunsook Do, Striving for Failure: An Industrial Case Study About Test Failure Prediction *IEEE International Conference on Software Engineering (ICSE), Software Engineering In Practice (SEIP)*, Florence, Italy, May, 2015.
- Charitha Hettiarachchi, Hyunsook Do, and Byoungju Choi, Effective Regression Testing Using Requirements and Risks, *IEEE International Conference on Software Security and Reliability (SERE)*, San Francisco, CA, USA, June, 2014, pages 157-166.
- Daniel Aceituna, Hyunsook Do, and Sudarshan Srinivasan, A Systematic Approach to Transforming System Requirements into Model Checking Specifications. *IEEE International Conference on Software Engineering (ICSE), Software Engineering In Practice (SEIP)*, Hyderabad, India, May, 2014, pages 165-174.

- Jeff Anderson, Saeed Salem, and Hyunsook Do, Improving the Effectiveness of Test Suite through Mining Historical Data. *Working Conference on Mining Software Repositories (MSR)*, Hyderabad, India, May, 2014, pages 142-151.
- Md Hossain, Hyunsook Do, and Ravi Eda, Regression Testing for Web Applications Using Reusable Constraint Values, *International Workshop on Regression Testing*, Cleveland, OH, USA, April, 2014.
- Chris Schaefer, and Hyunsook Do, Model-Based Exploratory Testing: A Controlled Experiment, *Workshop on Advances in Model Based Testing (A-MOST)*, Cleveland, OH, USA, April, 2014.
- Anneliese Andrews and Hyunsook Do, Trade-off Analysis for Selective versus Brute-Force Regression Testing in FSMWeb, *IEEE International Symposium on High Assurance Systems Engineering (HASE)*, Miami, FL, USA, January, 2014.
- Chris Schaefer, Hyunsook Do, and Brian Slator, Crushinator: A Framework towards Game-Independent Testing, *IEEE/ACM International Conference on Automated Software Engineering (ASE)*, tool demo, Silicon Valley, CA, USA, November, 2013.
- Amanda Schwartz and Hyunsook Do, A Fuzzy Expert System for Cost-Effective Regression Testing, *IEEE International Conference on Software Maintenance (ICSM)*, Eindhoven, Netherlands, September, 2013, pages 1-10.
- Md Arafeen and Hyunsook Do, Test Case Prioritization Using Requirements-Based Clustering, *IEEE International Conference on Software Testing, Verification and Validation (ICST)*, April, 2013, pages 312-321.
- Aaron Marback, Hyunsook Do, and Nathan Ehresmann, An Effective Regression Testing Approach for PHP Web Applications, *IEEE International Conference on Software Testing, Verification and Validation (ICST)*, April, 2012, pages 221-230.
- Md Arafeen and Hyunsook Do, Adaptive Regression Testing Strategy: An Empirical Study, *IEEE International Symposium on Software Reliability Engineering (ISSRE)*, November, 2011, pages 130-139.
- Ryan Carlson, Hyunsook Do, and Anne Denton. A Clustering Approach to Improving Test Case Prioritization: An Industrial Case Study, *IEEE International Conference on Software Maintenance (ICSM)*, September, 2011, pages 382-391.
- Daniel Aceituna, Hyunsook Do, Gursimran Walia, and Seok-Won Lee, Evaluating the Use of Model-based Requirements Verification Method: A Feasibility Study, *International Workshop on Empirical Requirements Engineering (EmpiRE) at Requirements Engineering (RE)*, August, 2011, pages 13-20.
- Daniel Aceituna, Hyunsook Do, and Seok-Won Lee, Interactive Requirements Validation for Reactive Systems through Virtual Requirements Prototype, *Model-Driven Requirements Engineering (MoDRE) at Requirements Engineering (RE)*, August, 2011.
- Daniel Aceituna, Hyunsook Do, and Seok-Won Lee,  $SQ^2E$ : An Approach to Requirements Validation with Scenario Question, D. Aceituna, *APSEC*, December, 2010, page 33-42.
- Aaron Marback and Hyunsook Do, A Regression Testing Engine for PHP Web Applications: PARTE, *IEEE International Symposium on Software Reliability Engineering (ISSRE)*, November, 2010, fast abstract, pages 404-405.

- Daniel Aceituna, Hyunsook Do, and Seok-Won Lee, A Human Interactive Approach to Building Requirements Models, *IEEE International Symposium on Software Reliability Engineering (ISSRE)*, November, 2010, fast abstract, pages 400-401.
- Panduka Nagahawatte and Hyunsook Do, The Effectiveness of Regression Testing Techniques in Reducing the Occurrence of Residual Defects, *International Conference on Software Testing, Verification and Validation (ICST)*, April. 2010, pages 79-88.
- Aaron Marback, Hyunsook Do, Ke He, Samuel Kondamarri, and Dianxiang Xu, *Security test generation using threat trees*, Proceedings of the Fourth International Workshop on the Automation of Software Test (AST), May, 2009, pages 62-69.
- Hyunsook Do, Siavash Mirarab, Ladan Tahvildari, and Gregg Rothermel, *An empirical study of the effect of time constraints on the cost-benefits of regression testing*, Proceedings of the ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE), November, 2008, pages 71-82.
- Hyunsook Do and Gregg Rothermel, *Using sensitivity analysis to create simplified economic models for regression testing*, Proceedings of the International Conference on Software Testing and Analysis (ISSTA), July 2008, pages 51-61.
- Hyunsook Do and Gregg Rothermel, *An empirical study of regression testing techniques incorporating context and lifecycle factors and improved cost-benefit models*, Proceedings of the ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE), November, 2006, pages 141-151.
- Hyunsook Do and Gregg Rothermel, *A Controlled Experiment Assessing Test Case Prioritization Techniques via Mutation Faults*, IEEE International Conference on Software Maintenance (ICSM), September, 2005, pages 411-420.
- Hyunsook Do, Gregg Rothermel, and Alex Kinneer, *Empirical Studies of Test Case Prioritization in a JUnit Testing Environment*, IEEE International Symposium on Software Reliability Engineering (ISSRE), November 2004, pages 113-124.
- Hyunsook Do, Sebastian Elbaum, and Gregg Rothermel, *Infrastructure Support for Controlled Experimentation with Software Testing and Regression Testing Techniques*, ACM-IEEE International Symposium on Empirical Software Engineering (ISESE), August, 2004, pages 60-70.
- Alex Orso, Mary J. Harrold, David Rosenblum, Gregg Rothermel, Mary L. Soffa, and Hyunsook Do, *Using Component Metadata to Support the Regression Testing of Component-Based Software*, IEEE International Conference on Software Maintenance (ICSM), November, 2001, pages 716-725.
- Hyunsook Do, Sungyong Bae, and Sangki Kim, *INAP Protocol Test Suite Verification Method using the IUT Simulator for AIN System Conformance Testing*, Lecture Notes in Computer Science, Springer, April, 1998.
- Hyunsook Do, Sungyong Bae, and Sangki Kim, *AIN Protocol Conformance Test Suite Generation using Formal Methods*, Advanced Intelligent Networks (AIN), University of Passau, Italy, July, 1997.
- Hyunsook Do, *A Design and Analysis of Telecommunication Protocol using Object-Oriented Methodology*, The sixth workshop on Synthesis and System Integration of Mixed Technologies (SASIMI), Japan, November, 1996.

## Other Publications and Technical Reports

Panduka Nagahawatte and Hyunsook Do, *Can Regression Testing Techniques be Effective in Reducing the Occurrence of Residual Defects?*, Technical Report: NDSU-CS-TR-09-004, Department of Computer Science, North Dakota State University, June, 2009.

Daniel Aceituna and Hyunsook Do, *Validating Requirements Models Using SQ Querying*, Technical Report: NDSU-CS-TR-09-003, Department of Computer Science, North Dakota State University, June, 2009.

Aaron Marback, Hyunsook Do, Ke He, Samuel Kondamarri, and Dianxiang Xu, *Security Test Generation using Threat Trees*, Technical Report: NDSU-CS-TR-09-001, Department of Computer Science, North Dakota State University, January, 2009.

Hyunsook Do and Gregg Rothermel, *Software-artifact Infrastructure Repository (SIR) for Supporting Empirical Studies in Software Engineering*, Poster, International Symposium on Empirical Software Engineering (ISESE), September, 2006.

Hyunsook Do, *The State of the Art in Controlled Experimentation on Testing Techniques and an Evaluation Criteria for Controlled Experiments*, Technical Report TR-UNL-CSE-2006-015, Department of Computer Science and Engineering, University of Nebraska - Lincoln, January, 2006.

Hyunsook Do, Sebastian Elbaum, Gregg Rothermel, *Building an Infrastructure to Support Experimentation with Software Testing Techniques*, Online Proceedings of the ISSTA Workshop on Empirical Research in Software Testing (WERST), July 2004.

Hyunsook Do, Gregg Rothermel, and Sebastian Elbaum, *Infrastructure Support for Controlled Experimentation with Software Testing and Regression Testing Techniques*, Technical Report 04-60-01, Department of Computer Science, Oregon State University, January, 2004.

## Grants

- NSF, Computing and Communication Foundations, CAREER: Context-aware Regression Testing Techniques and Empirical Evaluations of Their Economic Impact, **PI**, \$500,000, 4/1/2012 - 3/31/2017, award-number: CCF-1149389.
- NSF, REU supplement to CCF-1149389, \$16,000, 2012.
- NSF, Computing and Communication Foundations, EAGER: Adaptive Regression Testing (ART) Strategies and Empirical Evaluations, **PI**, \$50,000, 9/1/2010 - 8/31/2012, award-number: CCF-1050343.
- NSF, Computing Research Infrastructure, II-NEW: Infrastructure for Model-based Security Testing, Controlled Experiments, and Education, **PI**, \$220,000, 9/1/2009 - 8/31/2012, award-number: CNS-0855106.
- NSF, REU supplement to CNS-0855106, \$16,000, 2010.

## Professional Activities

- **Program Committee Member:** IEEE International Conference on Software Testing, Verification and Validation (ICST) PhD Symposium, program co-chair 2013; The international workshop on Regression Testing, program co-chair, 2013; IEEE International Symposium on Software Reliability Engineering (ISSRE), 2013; The Testing: Academic and Industrial Conference - Practice and Research Techniques (TAIC PART), 2009 and 2014; The international workshop on Automation Software Testing (AST) 2010-2012; The international workshop on Software Engineering for Secure Systems (SESS) 2010-2012; The International Conference on Software Testing, Verification and Validation (ICST) 2011, 2012, 2013, 2015, and 2016; Regression 2011; ACM/SIGAPP Symposium On Applied Computing (SAC) 2015-2016
- **Journal Reviewer:** IEEE Transactions on Software Engineering; ACM Transactions on Software Engineering and Methodology; Journal of Software Testing, Verification and Reliability; Information and Software Technology; Journal of Computers and Security; Journal of Systems and Software; Journal of Software Maintenance and Evolution; Journal of Empirical Software Engineering; Software Quality Journal

## Awards/Honors

- The College of Science and Mathematics Award for Excellence in Research, North Dakota State University, 2013.
- NSF CAREER award, 2012-2017.
- Jensen Chair Graduate Research Assistant Fellowship, Department of Computer Science and Engineering, University of Nebraska-Lincoln (2004-2007).
- IBM-Asia Fellowship, Japan, 1992-1994.

## Thesis Advisor and Postgraduate-Scholar Sponsor

Ravi Eda (Ph.D., in progress); Jeff Anderson (Ph.D., in progress); Charitha Hettiarachchi (Ph.D., in progress); Daniel Aceituna (Ph.D., 2015); Amanda Schwartz (Ph.D., 2013); Amro Hassan (M.S., 2015); Karl Gunderson (M.S., 2013); Md. Hossain (M.S., 2013); Chris Schaefer (M.S., 2013); Md. Junaid Arafeen (M.S., 2012); Ryan Carlson (M.S., 2010); Daniel Aceituna (M.S., 2009); Pandu Nagahawatte (M.S., 2008)