

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

Jeff Anderson, Matal Azizi, Saeed Salem, and Hyunsook Do, Identifying Usage Patterns Using Telemetry to Improve Test Prioritization, *Journal of Information and Software Technology*, 2019, to appear.

Daniel Aceituna and Hyunsook Do, Addressing the State Explosion Problem when Visualizing Off-Nominal Behaviors in a Set of Reactive Requirements, *Requirements Engineering*, vol. 22, 2017.

Amanda Schwartz and Hyunsook Do, Cost-effective Regression Testing through Adaptive Test Prioritization Strategies, *Journal of Systems and Software*, 115:61-81, 2016.

- 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

- Kaushik Madala, Hyunsook Do, and Daniel Aceituna, Exposing Off-Nominal Behaviors in Multi-Robot Coordination, *2nd International Workshop on Robotics Software Engineering*, May, 2019.
- Danielle Gaither, Kaushik Madala, Hyunsook Do, and Barrett R. Bryant, VeriCCM: Improving the Syntax and Semantics of Requirements Models, *The 33rd ACM/SIGAPP Symposium On Applied Computing (SAC)*, Poster, April, 2019.
- Maral Azizi and Hyunsook Do, ReTEST: A Cost Effective Test Case Selection Technique for Modern Software Development, *International Symposium on Software Reliability Engineering (ISSRE)*, October, 2018.

- Maral Azizi and Hyunsook Do, Graphite: A Greedy Graph-Based Technique for Regression Test Case, *11th International Research Workshop on Advances and Innovations in Software Testing*, October, 2018.
- Kaushik Madala, Hyunsook Do, and Daniel Aceituna, A Knowledge Acquisition Approach for Off-Nominal Behaviors, *4th International Workshop on Requirements Engineering for Self-Adaptive, Collaborative, and Cyber Physical Systems (RESACS)*, August, 2018.
- Kaushik Madala, Hyunsook Do, and Daniel Aceituna, Deriving Functional Safety Requirements using Undesired Combination State Templates, *4th International Workshop on Requirements Engineering for Self-Adaptive, Collaborative, and Cyber Physical Systems (RESACS)*, August, 2018.
- Kaushik Madala, Shraddha Piparia, Hyunsook Do, and Renee Bryce, Finding Component State Transition Model Elements using Neural Networks: An Empirical Study, *Workshop on Artificial Intelligence for Requirements Engineering (AIRE)*, August, 2018.
- Kaushik Madala, Hyunsook Do, and Daniel Aceituna, Combinatorial Approach for Exposing Off-Nominal Behaviors, *IEEE International Conference on Software Engineering (ICSE)*, May, 2018.
- Maral Azizi and Hyunsook Do, A Collaborative Filtering Recommender System for Test Case Prioritization in Web Applications, *The 33rd ACM/SIGAPP Symposium On Applied Computing (SAC)*, April, 2018.
- Danielle Gaither, Hyunsook Do, and Barrett R. Bryant, Toward Detection of Abnormal Behaviors in Timing and Security Requirements, *The 24th Asia-Pacific Software Engineering Conference (APSEC)*, December, 2017.
- Kaushik Madala, Hyunsook Do, and Daniel Aceituna, Hierarchical Model Exploration for Exposing Off-Nominal Behaviors, *14th Workshop on Model-Driven Engineering, Verification, and Validation (MoDeVva)*, September, 2017.
- Kaushik Madala, Danielle Gaither, Rodney Nielsen, and Hyunsook Do, Automated Identification of Component State Transition Model Elements from Requirements, *Workshop on Artificial Intelligence for Requirements Engineering (AIRE)*, September, 2017.
- Jeff Andersonx, Hyunsook Do, and Saeed Salem. Customized Regression Testing Using Telemetry Usage Patterns, *IEEE International Conference on Software Maintenance and Evolution (ICSME)*, October, 2016, pages 572-581.
- Dmitry Murmuradov, Renee Bryce and Hyunsook Do, Multilevel Coarse-to-Fine-Grained Prioritization for GUI and Web Applications, *Workshop on Automated Software Testing (A-TEST)*, November, 2016, pages 1-7.
- 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, *SQ²E*: 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 - 3/31/2019, 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

- **Journal Editor:**

Journal of Software Testing, Verification and Reliability, 2016-present.

- **Program Committee Member:**

- The ACM/IEEE International Conference on Software Engineering (ICSE) Demonstrations Track program co-chair, 2020.
- The International Conference on Software Testing, Verification and Validation (ICST), 2011-2013, 2015, 2016-2019.
- International Symposium on Software Testing and Analysis(ISSTA) Tool Demonstration, 2018.
- ACM/SIGAPP Symposium On Applied Computing (SAC) 2015-2019.
- IEEE Workshop on NEXt level of Test Automation (NEXTA) 2018.
- Asia-Pacific Software Engineering Conference (APSEC) 2018-2019.
- The international workshop on Automation Software Testing (AST) 2010-2012, 2015-2017.
- ICSE-SRC (International Conference on Software Engineering Student Research Competition) 2016.
- GHC (Grace Hopper Celebration of Women in Computing) Productization track 2015
- The Testing: Academic and Industrial Conference - Practice and Research Techniques (TAIC PART), 2009 and 2014.
- 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 international workshop on Software Engineering for Secure Systems (SESS) 2010-2012.
- Regression, 2011.

- **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, 2012-2019.
- 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

Kaushik Madala (Ph.D., in progress); Maral Azizi (Ph.D., in progress); Rajeev Ranjan (Ph.D., in progress); Keye Hang (M.S., in progress); Danielle Gaither (Ph.D., 2019); Ravi Eda (Ph.D., 2018); Jeff Anderson (Ph.D., 2016); Charitha Hettiarachchi (Ph.D., 2016); 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)