Miguel Velez

Publications

Books

- [40] S. Apel, D. Batory, C. Kästner, and G. Saake. *Feature-Oriented Software Product Lines: Concepts and Implementation*. Berlin/Heidelberg, Germany: Springer-Verlag, 2013.
- [39] A. Downey. Think Bayes. "O'Reilly Media, Inc.", 2013.
- [38] T. Lindholm, F. Yellin, G. Bracha, and A. Buckley. *The Java Virtual Machine Specification, Java SE 7 Edition*. 1st. Addison-Wesley Professional, 2013.
- [37] T. Parr. The Definitive ANTLR 4 Reference. 2nd. Pragmatic Bookshelf, 2013.
- [36] A. Brown and G. Wilson. *The Architecture of Open Source Applications, Volume II.* The Architecture of Open Source Applications v. 2. Kristian Hermansen, 2012.
- [35] A. V. Levitin. *Introduction to the Design and Analysis of Algorithms (3rd Edition)*. Boston, MA, USA: Addison-Wesley, 2012.
- [34] J. Mongan, N. Suojanen, and E. Giguere. Programming Interviews Exposed. 2012.
- [33] K. P. Murphy. Machine Learning: A Probabilistic Perspective. MIT Press, 2012.
- [32] A. Brown and G. Wilson. *The Architecture of Open Source Applications, Volume I.* The Architecture of Open Source Applications v. 1. CreativeCommons, 2011.
- [31] I. H. Witten, E. Frank, and M. A. Hall. *Data Mining: Practical Machine Learning Tools and Techniques*. 3rd. San Francisco, CA, USA: Morgan Kaufmann Publishers Inc., 2011.
- [30] F. P. Brooks. *The Design of Design: Essays from a Computer Scientist*. 1st edition. Addison-Wesley Professional, 2010.
- [29] F. Nielson, H. R. Nielson, and C. Hankin. *Principles of Program Analysis*. Springer Publishing Company, Incorporated, 2010.
- [28] T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein. *Introduction to Algorithms, Third Edition*. 3rd. MIT Press, 2009.
- [27] T. Parr. Language Implementation Patterns: Create Your Own Domain-Specific and General Programming Languages. 1st. Pragmatic Bookshelf, 2009.
- [26] R. Yin. *Case Study Research: Design and Methods*. 4th edition. Applied Social Research Methods. SAGE Publications, 2009.
- [25] M. Herlihy and N. Shavit. *The Art of Multiprocessor Programming*. San Francisco, CA, USA: Morgan Kaufmann Publishers Inc., 2008.

- [24] T. Parr. The Definitive ANTLR Reference: Building Domain-Specific Languages. Pragmatic Bookshelf, 2007.
- [23] F. Shull, J. Singer, and D. I. Sjøberg. *Guide to Advanced Empirical Software Engineering*. Secaucus, NJ, USA: Springer-Verlag New York, Inc., 2007.
- [22] A. V. Aho, M. S. Lam, R. Sethi, and J. D. Ullman. *Compilers: Principles, Techniques, and Tools (2nd Edition)*. Boston, MA, USA: Addison-Wesley, 2006.
- [21] C. M. Bishop. *Pattern Recognition and Machine Learning (Information Science and Statistics)*. Secaucus, NJ, USA: Springer-Verlag New York, Inc., 2006.
- [20] P. Feiler, K. Sullivan, K. Wallnau, R. Gabriel, J. Goodenough, R. Linger, T. Longstaff, R. Kazman, M. Klein, L. Northrop, and D. Schmidt. *Ultra-Large-Scale Systems: The Software Challenge of the Future*. Software Engineering Institute, Carnegie Mellon University, 2006.
- [19] D. C. Montgomery. Design and Analysis of Experiments. John Wiley & Sons, 2006.
- [18] S. Krishnamurthi. *Programming Languages: Application and Interpretation*. e-book, 2003.
- [17] R. Laddad. *AspectJ in Action: Practical Aspect-Oriented Programming*. Greenwich, CT, USA: Manning Publications, 2003.
- [16] P. Clements, B. Felix, L. Bass, D. Garlan, J. Ivers, R. Little, P. Merson, R. Nord, and J. Stafford. *Documenting Software Architectures: Views and Beyond*. Pearson Education, 2002.
- [15] D. J. C. MacKay. *Information Theory, Inference & Learning Algorithms*. New York, NY, USA: Cambridge University Press, 2002.
- [14] A. Shalloway and J. R. Trott. *Design Patterns Explained: A New Perspective on Object-Oriented Design*. Boston, MA, USA: Addison-Wesley, 2002.
- [13] C. Szyperski. Component Software: Beyond Object-Oriented Programming. 2nd. Boston, MA, USA: Addison-Wesley, 2002.
- [12] K. Czarnecki and U. Eisenecker. *Generative Programming: Methods, Tools, and Applications*. New York, NY, USA: ACM Press/Addison-Wesley, 2000.
- [11] D. E. Knuth. *The Art of Computer Programming, Volume 3: (2Nd Ed.) Sorting and Searching*. Redwood City, CA, USA: Addison-Wesley, 1998.
- [10] D. E. Knuth. *The Art of Computer Programming, Volume 1 (3rd Ed.): Fundamental Algorithms*. Redwood City, CA, USA: Addison-Wesley, 1997.
- [9] D. E. Knuth. *The Art of Computer Programming, Volume 2 (3rd Ed.): Seminumerical Algorithms*. Boston, MA, USA: Addison-Wesley, 1997.
- [8] T. M. Mitchell. Machine Learning. 1st ed. New York, NY, USA: McGraw-Hill, Inc., 1997.
- [7] H. Abelson and G. J. Sussman. *Structure and Interpretation of Computer Programs*. 2nd. Cambridge, MA, USA: MIT Press, 1996.

- [6] M. Shaw and D. Garlan. *Software Architecture: Perspectives on an Emerging Discipline*. Upper Saddle River, NJ, USA: Prentice-Hall, Inc., 1996.
- [5] H. A. Simon. *The Sciences of the Artificial (3rd Ed.)* Cambridge, MA, USA: MIT Press, 1996.
- [4] F. P. Brooks Jr. *The Mythical Man-Month*. anniversary. Boston, MA, USA: Addison-Wesley, 1995.
- [3] E. Gamma, R. Helm, R. Johnson, and J. Vlissides. *Design Patterns: Elements of Reusable Object-oriented Software*. Boston, MA, USA: Addison-Wesley Longman Publishing Co., Inc., 1995.
- [2] D. P. Siewiorek, C. G. Bell, and A. Newell. *Computer structures: principles and examples*. McGraw-Hill computer science series. McGraw-Hill, 1987. Chap. 2, Levels and Abstraction.
- [1] P. Naur and B. Randell. Software Engineering: Report of a Conference Sponsored by the NATO Science Committee, Garmisch, Germany, 7-11 Oct. 1968, Brussels, Scientific Affairs Division, NATO. 1969.

Refereed Journal Articles

- [47] N. Polikarpova, J. Yang, S. Itzhaky, and A. Solar-Lezama. "Type-Driven Repair for Information Flow Security". In *CoRR* abs/1607.03445 (2016).
- [46] B. A. Myers, A. J. Ko, T. D. LaToza, and Y. Yoon. "Programmers Are Users Too: Human-Centered Methods for Improving Programming Tools". In *Computer* 49.7 (July 2016), pp. 44–52.
- [45] B. A. Myers and J. Stylos. "Improving API Usability". In *Commun. ACM* 59.6 (May 2016), pp. 62–69.
- [44] J. Bell and G. Kaiser. "Phosphor: Illuminating Dynamic Data Flow in Commodity Jvms". In *SIGPLAN Notices* 49.10 (Oct. 2014), pp. 83–101.
- [43] J. M. Barnes, D. Garlan, and B. Schmerl. "Evolution Styles: Foundations and Models for Software Architecture Evolution". In *Softw. Syst. Model.* (*SoSyM*) 13.2 (May 2014), pp. 649–678.
- [42] F. Hutter, L. Xu, H. H. Hoos, and K. Leyton-Brown. "Algorithm Runtime Prediction: Methods & Evaluation". In *Artif. Intell.* 206 (Jan. 2014), pp. 79–111.
- [41] N. Siegmund, M. Rosenmüller, M. Kuhlemann, C. Kästner, S. Apel, and G. Saake. "SPL Conqueror: Toward Optimization of Non-functional Properties in Software Product Lines". In *Software Quality Journal* 20.3-4 (Sept. 2012), pp. 487–517.
- [40] H. H. Hoos. "Programming by Optimization". In *Commun. ACM* 55.2 (Feb. 2012), pp. 70–80.
- [39] T. Ball, V. Levin, and S. K. Rajamani. "A Decade of Software Model Checking with SLAM". In *Commun. ACM* 54.7 (July 2011), pp. 68–76.
- [38] G. Bell and D. P. Siewiorek. "The Book Computer Structures: Thoughts After 40 Years". In *IEEE Ann. Hist. Comput.* 33.2 (Apr. 2011), pp. 89–95.
- [37] A. Bessey, K. Block, B. Chelf, A. Chou, B. Fulton, S. Hallem, C. Henri-Gros, A. Kamsky, S. McPeak, and D. Engler. "A Few Billion Lines of Code Later: Using Static Analysis to Find Bugs in the Real World". In *Commun. ACM* 53.2 (Feb. 2010), pp. 66–75.
- [36] N. Ayewah, D. Hovemeyer, J. D. Morgenthaler, J. Penix, and W. Pugh. "Using Static Analysis to Find Bugs". In *IEEE Softw.* 25.5 (Sept. 2008), pp. 22–29.
- [35] A. Nhlabatsi, R. Laney, and B. Nuseibeh. "Feature Interaction: The Security Threat from within Software Systems". In *Progress in Informatics* 5 (Mar. 2008), pp. 75–89.
- [34] W. Visser. "Designing as construction of representations: A dynamic viewpoint in cognitive design research". In *Human–Computer Interaction* 21.1 (Dec. 2006), pp. 103–152.
- [33] B. Schmerl, J. Aldrich, D. Garlan, R. Kazman, and H. Yan. "Discovering Architectures from Running Systems". In *IEEE Trans. Softw. Eng. (TSE)* 32.7 (July 2006), pp. 454–466.

- [32] D. P. Siewiorek and P. Narasimhan. "Fault-tolerant architectures for space and avionics applications". In *NASA Ames Research* (2005).
- [31] N. Ducheneaut. "Socialization in an Open Source Software Community: A Socio-Technical Analysis". In *Comput. Supported Coop. Work* 14.4 (Aug. 2005), pp. 323–368.
- [30] J. F. Maranzano, S. A. Rozsypal, G. H. Zimmerman, G. W. Warnken, P. E. Wirth, and D. M. Weiss. "Architecture Reviews: Practice and Experience". In *IEEE Softw.* 22.2 (Mar. 2005), pp. 34–43.
- [29] D. Garlan, S.-W. Cheng, A.-C. Huang, B. Schmerl, and P. Steenkiste. "Rainbow: Architecture-Based Self-Adaptation with Reusable Infrastructure". In *Computer* 37.10 (Oct. 2004), pp. 46–54.
- [28] D. P. Siewiorek, R. Chillarege, and Z. T. Kalbarczyk. "Reflections on Industry Trends and Experimental Research in Dependability". In *IEEE Trans. Dependable Secur. Comput.* 1.2 (Apr. 2004), pp. 109–127.
- [27] G. Tassey. "The economic impacts of inadequate infrastructure for software testing". In *National Institute of Standards and Technology, RTI Project* 7007.011 (2002).
- [26] A. Mockus, R. T. Fielding, and J. D. Herbsleb. "Two Case Studies of Open Source Software Development: Apache and Mozilla". In *ACM Trans. Softw. Eng. Methodol.* (TOSEM) 11.3 (July 2002), pp. 309–346.
- [25] A. Zeller. "Yesterday, My Program Worked. Today, It Does Not. Why?" In SIGSOFT Softw. Eng. Notes 24.6 (Oct. 1999), pp. 253–267.
- [24] G. C. Murphy and D. Notkin. "Reengineering with Reflexion Models: A Case Study". In *Computer* 30.8 (Aug. 1997), pp. 29–36.
- [23] J. Wang and C. J. Wu. "A hidden projection property of Plackett-Burman and related designs". In *Statistica Sinica* (1995), pp. 235–250.
- [22] D. Garlan, R. Allen, and J. Ockerbloom. "Architectural Mismatch: Why Reuse Is So Hard". In *IEEE Softw.* 12.6 (Nov. 1995), pp. 17–26.
- [21] R. E. Kraut and L. A. Streeter. "Coordination in Software Development". In *Commun. ACM* 38.3 (Mar. 1995), pp. 69–81.
- [20] V. R. B.-G. Caldiera and H. D. Rombach. "Goal question metric paradigm". In *Encyclopedia of Software Engineering* 1 (1994), pp. 528–532.
- [19] G. D. Gopen and J. A. Swan. "The science of scientific writing". In *American Scientist* 78.6 (1990), pp. 550–558.
- [18] A. Hall. "Seven Myths of Formal Methods". In IEEE Softw. 7.5 (Sept. 1990), pp. 11–19.
- [17] B. Curtis, H. Krasner, and N. Iscoe. "A Field Study of the Software Design Process for Large Systems". In *Commun. ACM* 31.11 (Nov. 1988), pp. 1268–1287.
- [16] R. Johnson and B. Foote. "Designing Reusable Classes". In *Journal of Object-Oriented Programming SIGS* 1.5 (June 1988), pp. 22–35.

- [15] B. W. Boehm. "A Spiral Model of Software Development and Enhancement". In *Computer* 21.5 (May 1988), pp. 61–72.
- [14] W. S. Humphrey. "Characterizing the Software Process: A Maturity Framework". In *IEEE Softw.* 5.2 (Mar. 1988), pp. 73–79.
- [13] D. Harel. "Statecharts: A Visual Formalism for Complex Systems". In *Sci. Comput. Program.* 8.3 (June 1987), pp. 231–274.
- [12] F. P. Brooks Jr. "No Silver Bullet Essence and Accidents of Software Engineering". In *Computer* 20.4 (Apr. 1987), pp. 10–19.
- [11] E. J. Weyuker. "Axiomatizing Software Test Data Adequacy". In *IEEE Trans. Softw. Eng.* (TSE) 12.12 (Dec. 1986), pp. 1128–1138.
- [10] E. M. Clarke, E. A. Emerson, and A. P. Sistla. "Automatic Verification of Finite-state Concurrent Systems Using Temporal Logic Specifications". In *ACM Trans. Program. Lang. Syst.* 8.2 (Apr. 1986), pp. 244–263.
- [9] M. Shaw. "The impact of abstraction concerns on modern programming languages". In *Proc. of the IEEE* 68.9 (Apr. 1980), pp. 1119–1130.
- [8] R. A. De Millo, R. J. Lipton, and A. J. Perlis. "Social Processes and Proofs of Theorems and Programs". In *Commun. ACM* 22.5 (May 1979), pp. 271–280.
- [7] J. C. King. "Symbolic Execution and Program Testing". In *Commun. ACM* 19.7 (July 1976), pp. 385–394.
- [6] W. A. Wulf, R. L. London, and M. Shaw. "An Introduction to the Construction and Verification of Alphard Programs". In *IEEE Trans. Softw. Eng. (TSE)* 2.4 (July 1976), pp. 253–265.
- [5] F. DeRemer and H. Kron. "Programming-in-the-Large Versus Programming-in-the-Small". In *IEEE Trans. Softw. Eng. (TSE)* SE-2.2 (June 1976), pp. 80–86.
- [4] H. W. J. Rittel and M. M. Webber. "Dilemmas in a general theory of planning". In *Policy Sciences* 4.2 (June 1973), pp. 155–169.
- [3] C. A. R. Hoare. "Proof of correctness of data representations". In *Acta Informatica* 1.4 (Dec. 1972), pp. 271–281.
- [2] D. L. Parnas. "On the Criteria to Be Used in Decomposing Systems into Modules". In *Commun. ACM* 15.12 (Dec. 1972), pp. 1053–1058.
- [1] M. E. Conway. "How do committees invent?" In Datamation 14.4 (1968), pp. 28–31.

Refereed Conference Publications

- [83] V. Nair, T. Menzies, N. Siegmund, and S. Apel. "Using Bad Learners to find Good Configurations". In *Proc. Conference*. Washington, DC, USA: IEEE Computer Society, July 2017.
- [82] P. Jamshidi, M. Velez, C. Kästner, N. Siegmund, and P. Kawthekar. "Transfer Learning for Improving Model Predictions in Highly Configurable Software". In *Proc. Int'l Symp. Software Engineering for Adaptive and Self-Managing Systems (SEAMS)*. Buenos Aires, Argentina, May 2017. Accepted for publication. (23% acceptance rate).
- [81] E. Kang, A. Milicevic, and D. Jackson. "Multi-representational Security Analysis". In *Proc. Int'l Symp. Foundations of Software Engineering (FSE)*. Seattle, WA, USA: ACM, Nov. 2016, pp. 181–192.
- [80] T. Nguyen, T. Koc, J. Cheng, J. S. Foster, and A. A. Porter. "iGen Dynamic Interaction Inference for Configurable Software". In Proc. Int'l Symp. Foundations of Software Engineering (FSE). Seattle, WA, USA: IEEE Computer Society, Nov. 2016.
- [79] L. Braz, R. Gheyi, M. Mongiovi, M. Ribeiro, F. Medeiros, and L. Teixeira. "A Change-centric Approach to Compile Configurable Systems with #Ifdefs". In *Proc. Int'l Conf. Generative Programming and Component Engineering (GPCE)*. Amsterdam, Netherlands: ACM, Oct. 2016, pp. 109–119.
- [78] S. P. De Rosso and D. Jackson. "Purposes, Concepts, Misfits, and a Redesign of Git". In *Proc. Int'l Conf. Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*. Amsterdam, Netherlands: ACM, Oct. 2016, pp. 292–310.
- [77] M. Al-Hajjaji, S. Krieter, T. Thüm, M. Lochau, and G. Saake. "IncLing: Efficient Product-line Testing Using Incremental Pairwise Sampling". In *Proc. Int'l Conf. Generative Programming and Component Engineering (GPCE)*. Amsterdam, Netherlands: ACM, Oct. 2016, pp. 144–155.
- [76] V. Rothberg, C. Dietrich, A. Ziegler, and D. Lohmann. "Towards Scalable Configuration Testing in Variable Software". In *Proc. Int'l Conf. Generative Programming and Component Engineering (GPCE)*. Amsterdam, Netherlands: ACM, Oct. 2016, pp. 156–167.
- [75] J. Meinicke, C.-P. Wong, C. Kästner, T. Thüm, and G. Saake. "On Essential Configuration Complexity: Measuring Interactions in Highly-configurable Systems". In *Proc. Int'l Conf. Automated Software Engineering (ASE)*. Singapore, Singapore: ACM, Sept. 2016, pp. 483–494.
- [74] L. Wei, Y. Liu, and S.-C. Cheung. "Taming Android Fragmentation: Characterizing and Detecting Compatibility Issues for Android Apps". In *Proc. Int'l Conf. Automated Software Engineering (ASE)*. Singapore, Singapore: ACM, Sept. 2016, pp. 226–237.
- [73] M. Velez, J. Sawin, A. Ingerson, and D. Chiu. "Improving Bitmap Execution Performance Using Column-Based Metadata". In *Int'l Conf. Future Internet of Things and Cloud (FiCloud)*. Vienna, Austria: IEEE Computer Society, Aug. 2016, pp. 371–378. (30% acceptance rate).

- [72] P. Kawthekar and C. Kästner. "Sensitivity Analysis For Building Evolving & Adaptive Robotic Software". In Proc. Workshop Autonomous Mobile Service Robots (WSR). New York, NY, USA, July 2016.
- [71] M. Dhok, M. K. Ramanathan, and N. Sinha. "Type-aware Concolic Testing of JavaScript Programs". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Austin, TX, USA: ACM, May 2016, pp. 168–179.
- [70] P. Thongtanunam, S. McIntosh, A. E. Hassan, and H. Iida. "Revisiting Code Ownership and Its Relationship with Software Quality in the Scope of Modern Code Review". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Austin, TX, USA: ACM, May 2016, pp. 1039–1050.
- [69] B. Vasilescu, K. Blincoe, Q. Xuan, C. Casalnuovo, D. Damian, P. Devanbu, and V. Filkov. "The Sky is Not the Limit: Multitasking Across GitHub Projects". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Austin, TX, USA: ACM, May 2016, pp. 994–1005.
- [68] A. C. Bahnsen, D. Aouada, A. Stojanovic, and B. Ottersten. "Detecting Credit Card Fraud Using Periodic Features". In *Int'l Conf. Machine Learning and Applications (ICMLA)*. Miami, FL, USA: IEEE Press, Dec. 2015, pp. 208–213.
- [67] F. Lv, H. Zhang, J.-g. Lou, S. Wang, D. Zhang, and J. Zhao. "CodeHow: Effective Code Search Based on API Understanding and Extended Boolean Model". In *Proc. Int'l Conf. Automated Software Engineering (ASE)*. Washington, DC, USA: IEEE Computer Society, Nov. 2015, pp. 260–270.
- [66] A. Sarkar, J. Guo, N. Siegmund, S. Apel, and K. Czarnecki. "Cost-Efficient Sampling for Performance Prediction of Configurable Systems". In *Proc. Int'l Conf. Automated Software Engineering (ASE)*. Washington, DC, USA: IEEE Computer Society, Nov. 2015, pp. 342–352.
- [65] M. Eichberg, B. Hermann, M. Mezini, and L. Glanz. "Hidden Truths in Dead Software Paths". In Proc. Europ. Software Engineering Conf. Foundations of Software Engineering (ESEC/FSE). Bergamo, Italy: ACM, Aug. 2015, pp. 474–484.
- [64] N. Siegmund, A. Grebhahn, S. Apel, and C. Kästner. "Performance-influence Models for Highly Configurable Systems". In *Proc. Europ. Software Engineering Conf. Foundations of Software Engineering (ESEC/FSE)*. Bergamo, Italy: ACM, Aug. 2015, pp. 284–294.
- [63] T. Xu, L. Jin, X. Fan, Y. Zhou, S. Pasupathy, and R. Talwadker. "Hey, You Have Given Me Too Many Knobs!: Understanding and Dealing with Over-designed Configuration in System Software". In *Proc. Int'l Symp. Foundations of Software Engineering (FSE)*. Bergamo, Italy: ACM, Aug. 2015, pp. 307–319.
- [62] C. Henard, M. Papadakis, M. Harman, and Y. Le Traon. "Combining Multi-objective Search and Constraint Solving for Configuring Large Software Product Lines". In Proc. Int'l Conf. Software Engineering (ICSE). Florence, Italy: IEEE Press, May 2015, pp. 517–528.

- [61] S. Elbaum, G. Rothermel, and J. Penix. "Techniques for Improving Regression Testing in Continuous Integration Development Environments". In *Proc. Int'l Symp. Foundations of Software Engineering (FSE)*. Hong Kong, China: ACM, Nov. 2014, pp. 235–245.
- [60] F. Anon, V. Navarathinarasah, M. Hoang, and C.-H. Lung. "Building a Framework for Internet of Things and Cloud Computing". In *Proc. Int'l Conf. Internet of Things* (*iThings*). Taipei, Taiwan: IEEE Computer Society, Sept. 2014, pp. 132–139.
- [59] M. Lillack, C. Kästner, and E. Bodden. "Tracking Load-time Configuration Options". In Proc. Int'l Conf. Automated Software Engineering (ASE). Vasteras, Sweden: ACM, Sept. 2014, pp. 445–456.
- [58] S. Arzt, S. Rasthofer, C. Fritz, E. Bodden, A. Bartel, J. Klein, Y. Le Traon, D. Octeau, and P. McDaniel. "FlowDroid: Precise Context, Flow, Field, Object-sensitive and Lifecycleaware Taint Analysis for Android Apps". In *Proc. Conf. Programming Language Design* and Implementation (PLDI). Edinburgh, UK: ACM, June 2014, pp. 259–269.
- [57] D. Garlan. "Software Architecture: A Travelogue". In *Proc. Future of Software Engineering (FOSE)*. Hyderabad, India: ACM, June 2014, pp. 29–39.
- [56] J. Guo, K. Czarnecki, S. Apel, N. Siegmund, and A. Wąsowski. "Variability-aware performance prediction: A statistical learning approach". In *Proc. Int'l Conf. Automated Software Engineering (ASE)*. IEEE Computer Society. Silicon Valley, CA, USA: ACM, Nov. 2013, pp. 301–311.
- [55] T. Xu, J. Zhang, P. Huang, J. Zheng, T. Sheng, D. Yuan, Y. Zhou, and S. Pasupathy. "Do Not Blame Users for Misconfigurations". In *Proc. Symp. Operating Systems Principles*. Farminton, PA, USA: ACM, Nov. 2013, pp. 244–259.
- [54] N. Siegmund, N. von Rhein, and S. Apel. "Family-Based Performance Measurement". In Proc. Int'l Conf. Generative Programming and Component Engineering (GPCE). Indianapolis, IN, USA: ACM, Oct. 2013, pp. 95–104.
- [53] M. Böhme, B. C. d. S. Oliveira, and A. Roychoudhury. "Regression Tests to Expose Change Interaction Errors". In *Proc. Int'l Symp. Foundations of Software Engineering (FSE)*. Saint Petersburg, Russia: ACM, Aug. 2013, pp. 334–344.
- [52] C. H. P. Kim, D. Marinov, S. Khurshid, D. Batory, S. Souto, P. Barros, and M. d'Amorim. "SPLat: Lightweight Dynamic Analysis for Reducing Combinatorics in Testing Configurable Systems". In *Proc. Europ. Software Engineering Conf. Foundations of Software Engineering (ESEC/FSE)*. Saint Petersburg, Russia: ACM, Aug. 2013, pp. 257–267.
- [51] S. Hao, D. Li, W. G. J. Halfond, and R. Govindan. "Estimating Mobile Application Energy Consumption Using Program Analysis". In Proc. Int'l Conf. Software Engineering (ICSE). San Francisco, CA, USA: IEEE Press, May 2013, pp. 92–101.
- [50] A. Niknafs and D. M. Berry. "The impact of domain knowledge on the effectiveness of requirements idea generation during requirements elicitation". In *Proc. Int'l Requirements Engineering Conf. (RE)*. Chicago, IL, USA: IEEE Computer Society, Sept. 2012, pp. 181–190.

- [49] D. Alrajeh, J. Kramer, A. v. Lamsweerde, A. Russo, and S. Uchitel. "Generating Obstacle Conditions for Requirements Completeness". In *Proc. Int'l Conf. Software Engineering* (*ICSE*). Zurich, Switzerland: IEEE Press, June 2012, pp. 705–715.
- [48] M. Greiler, A. v. Deursen, and M.-A. Storey. "Test Confessions: A Study of Testing Practices for Plug-in Systems". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Zurich, Switzerland: IEEE Press, June 2012, pp. 244–254.
- [47] A. Hindle, E. T. Barr, Z. Su, M. Gabel, and P. Devanbu. "On the Naturalness of Software". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Zurich, Switzerland: IEEE Press, June 2012, pp. 837–847.
- [46] C. Le Goues, M. Dewey-Vogt, S. Forrest, and W. Weimer. "A Systematic Study of Automated Program Repair: Fixing 55 out of 105 Bugs for \$8 Each". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Zurich, Switzerland: IEEE Press, June 2012, pp. 3–13.
- [45] D. Garlan, V. Dwivedi, I. Ruchkin, and B. Schmerl. "Foundations and Tools for End-user Architecting". In *Proc. Conf. Large-Scale Complex IT Systems: Development, Operation and Management*. Oxford, UK: Springer-Verlag, Mar. 2012, pp. 157–182.
- [44] L. Dabbish, C. Stuart, J. Tsay, and J. Herbsleb. "Social Coding in GitHub: Transparency and Collaboration in an Open Software Repository". In *Proc. Conf. Computer Supported Cooperative Work (CSCW)*. Seattle, WA, USA: ACM, Feb. 2012, pp. 1277–1286.
- [43] J. Sunshine, K. Naden, S. Stork, J. Aldrich, and É. Tanter. "First-class State Change in Plaid". In *Proc. Int'l Conf. Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*. Portland, OR, USA: ACM, Oct. 2011, pp. 713–732.
- [42] Z. Yin, D. Yuan, Y. Zhou, S. Pasupathy, and L. Bairavasundaram. "How Do Fixes Become Bugs?" In *Proc. Europ. Software Engineering Conf. Foundations of Software Engineering (ESEC/FSE)*. Szeged, Hungary: ACM, Sept. 2011, pp. 26–36.
- [41] A. Zeller, T. Zimmermann, and C. Bird. "Failure is a Four-letter Word: A Parody in Empirical Research". In *Int'l Conf. Predictive Models in Software Engineering*. Banff, Canada: ACM, Sept. 2011, 5:1–5:7.
- [40] C. Parnin and A. Orso. "Are Automated Debugging Techniques Actually Helping Programmers?" In *Proc. Int'l Symp. Software Testing and Analysis (ISSTA)*. Toronto, Canada: ACM, July 2011, pp. 199–209.
- [39] A. Bhave, B. Krogh, D. Garlan, and B. Schmerl. "View Consistency in Architectures for Cyber-Physical Systems". In *Int'l Conf. Cyber-Physical Systems (ICCPS)*. Chicago, IL, USA: IEEE Computer Society Press, Apr. 2011, pp. 151–160.
- [38] H. Hoffmann, S. Sidiroglou, M. Carbin, S. Misailovic, A. Agarwal, and M. Rinard. "Dynamic Knobs for Responsive Power-aware Computing". In *Proc. Int'l Conf. Architectural Support for Programming Languages and Operating Systems (ASPLOS)*. Newport Beach, CA, USA: ACM, Mar. 2011, pp. 199–212.
- [37] C. H. P. Kim, D. S. Batory, and S. Khurshid. "Reducing Combinatorics in Testing Product Lines". In *Proc. Int'l Conf. Aspect-Oriented Software Development (AOSD)*. Porto de Galinhas, Brazil: ACM, Mar. 2011, pp. 57–68.

- [36] F. Hutter, H. H. Hoos, and K. Leyton-Brown. "Sequential Model-based Optimization for General Algorithm Configuration". In *Proc. Int'l Conf. Learning and Intelligent Optimization*. Rome, Italy: Springer-Verlag, Jan. 2011, pp. 507–523.
- [35] W. Enck, P. Gilbert, B.-G. Chun, L. P. Cox, J. Jung, P. McDaniel, and A. N. Sheth. "TaintDroid: An Information-flow Tracking System for Realtime Privacy Monitoring on Smartphones". In *Proc. Conf. Operating Systems Design and Implementation (OSDI)*. Vancouver, BC, Canada: USENIX Association, 2010, pp. 393–407.
- [34] N. Maiden, S. Jones, K. Karlsen, R. Neill, K. Zachos, and A. Milne. "Requirements Engineering As Creative Problem Solving: A Research Agenda for Idea Finding". In *Proc. Int'l Requirements Engineering Conf. (RE)*. Sydney, Australia: IEEE Computer Society, Sept. 2010, pp. 57–66.
- [33] P. Sawyer, N. Bencomo, J. Whittle, E. Letier, and A. Finkelstein. "Requirements-Aware Systems: A Research Agenda for RE for Self-adaptive Systems". In *Proc. Int'l Requirements Engineering Conf. (RE)*. Sydney, Australia: IEEE Computer Society, Sept. 2010, pp. 95–103.
- [32] E. J. Schwartz, T. Avgerinos, and D. Brumley. "All You Ever Wanted to Know About Dynamic Taint Analysis and Forward Symbolic Execution (but Might Have Been Afraid to Ask)". In *Proc. Symp. Security and Privacy (SP)*. Oakland, CA, USA: IEEE Computer Society, May 2010, pp. 317–331.
- [31] D. F. Sutherland and W. L. Scherlis. "Composable Thread Coloring". In *Proc. Symp. Principles and Practice of Parallel Programming*. Bangalore, India: ACM, Jan. 2010, pp. 233–244.
- [30] J. Aranda and G. Venolia. "The Secret Life of Bugs: Going Past the Errors and Omissions in Software Repositories". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Vancouver, Canada: IEEE Computer Society, May 2009, pp. 298–308.
- [29] U. Dekel and J. D. Herbsleb. "Improving API Documentation Usability with Knowledge Pushing". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Vancouver, Canada: IEEE Computer Society Press, May 2009, pp. 320–330.
- [28] H. Müller, M. Pezzè, and M. Shaw. "Visibility of Control in Adaptive Systems". In *Proc. Int'l Workshop Ultra-Large-Scale Software-Intensive Systems (ULSSIS)*. Leipzig, Germany: ACM, May 2008, pp. 23–26.
- [27] N. Nagappan, B. Murphy, and V. Basili. "The Influence of Organizational Structure on Software Quality: An Empirical Case Study". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Leipzig, Germany: ACM, May 2008, pp. 521–530.
- [26] J. Aranda, S. Easterbrook, and G. Wilson. "Requirements in the wild: How small companies do it". In *Proc. Int'l Requirements Engineering Conf. (RE)*. New Delhi, India: IEEE Computer Society, Oct. 2007, pp. 39–48.
- [25] F. Steimann. "The Paradoxical Success of Aspect-oriented Programming". In *Proc. Int'l Conf. Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*. Portland, OR, USA: ACM, Oct. 2006, pp. 481–497.

- [24] D. Garlan and B. Schmerl. "Architecture-driven Modelling and Analysis". In *Proc. Safety Critical Systems and Software (SCS)*. Melbourne, Australia: Australian Computer Society, Inc., Aug. 2006, pp. 3–17.
- [23] P. Godefroid, N. Klarlund, and K. Sen. "DART: Directed Automated Random Testing". In *Proc. Conf. Programming Language Design and Implementation (PLDI)*. Chicago, IL, USA: ACM, June 2005, pp. 213–223.
- [22] D. Batory, J. N. Sarvela, and A. Rauschmayer. "Scaling Step-wise Refinement". In Proc. Int'l Conf. Software Engineering (ICSE). Portland, OR, USA: IEEE Computer Society, May 2003, pp. 187–197.
- [21] M. Shaw. "Writing Good Software Engineering Research Papers: Minitutorial". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Portland, Oregon: IEEE Computer Society, May 2003, pp. 726–736.
- [20] T. A. Henzinger, R. Jhala, R. Majumdar, and G. Sutre. "Lazy Abstraction". In *Proc. Symp. Principles of Programming Languages (POPL)*. Portland, OR, USA: ACM, Jan. 2002, pp. 58–70.
- [19] D. Fox. "KLD-Sampling: Adaptive Particle Filters". In *Advances in Neural Information Processing Systems* 14. MIT Press, 2001.
- [18] A. Van Lamsweerde. "Goal-Oriented Requirements Engineering: A Guided Tour". In *Proc. Int'l Requirements Engineering Conf. (RE)*. Toronto, Canada: IEEE Computer Society, Aug. 2001, pp. 249–262.
- [17] T. Ball and S. K. Rajamani. "Automatically Validating Temporal Safety Properties of Interfaces". In *Proc. Int'l Workshop Model Checking of Software (SPIN)*. Toronto, Canada: Springer-Verlag New York, Inc., May 2001, pp. 103–122.
- [16] B. R. Murphy and M. S. Lam. "Program Analysis with Partial Transfer Functions". In *Proc. Workshop Partial Evaluation and Semantics-based Program Manipulation*. Boston, MA, USA: ACM, Jan. 2000, pp. 94–103.
- [15] M. D. Ernst, J. Cockrell, W. G. Griswold, and D. Notkin. "Dynamically Discovering Likely Program Invariants to Support Program Evolution". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Los Angeles, CA, USA: ACM, May 1999, pp. 213–224.
- [14] P. Tarr, H. Ossher, W. Harrison, and S. M. Sutton Jr. "N Degrees of Separation: Multidimensional Separation of Concerns". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Los Angeles, CA, USA: ACM, May 1999, pp. 107–119.
- [13] L. Cardelli. "Program Fragments, Linking, and Modularization". In *Proc. Symp. Principles of Programming Languages (POPL)*. Paris, France: ACM, Jan. 1997, pp. 266–277.
- [12] C. Potts and W. C. Newstetter. "Naturalistic Inquiry and Requirements Engineering: Reconciling Their Theoretical Foundations". In *Proc. Int'l Requirements Engineering Conf.* (*RE*). Annapolis, MD, USA: IEEE Computer Society, Jan. 1997, pp. 118–127.
- [11] M. Jackson. "The World and the Machine". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Seattle, WA, USA: ACM, Apr. 1995, pp. 283–292.

- [10] O. Gotel and A. Finkelstein. "Contribution Structures". In *Proc. Int'l Requirements Engineering Conf. (RE)*. York, U.K.: IEEE Computer Society, Mar. 1995, pp. 100–107.
- [9] T. Biggerstaff. "The Library Scaling Problem and the Limits of Concrete Component Reuse". In *Proc. Int'l Conf. Software Reuse (ICSR)*. Rio de Janeiro, Brazil: IEEE Computer Society, 1994, pp. 102–109.
- [8] R. Allen and D. Garlan. "Formalizing Architectural Connection". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Sorrento, Italy: IEEE Computer Society Press, May 1994, pp. 71–80.
- [7] L. Osterweil. "Software Processes Are Software Too". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Monterey, CA, USA: IEEE Computer Society Press, Mar. 1987, pp. 2–13.
- [6] W. W. Royce. "Managing the Development of Large Software Systems: Concepts and Techniques". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Monterey, CA, USA: IEEE Computer Society Press, Mar. 1987, pp. 328–338.
- [5] S. T. Redwine Jr. and W. E. Riddle. "Software Technology Maturation". In *Proc. Int'l Conf. Software Engineering (ICSE)*. London, England: IEEE Computer Society Press, Aug. 1985, pp. 189–200.
- [4] D. L. Parnas, P. C. Clements, and D. M. Weiss. "The Modular Structure of Complex Systems". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Orlando, FL, USA: IEEE Press, Mar. 1984, pp. 408–417.
- [3] M. Weiser. "Program Slicing". In *Proc. Int'l Conf. Software Engineering (ICSE)*. San Diego, CA, USA: IEEE Press, Mar. 1981, pp. 439–449.
- [2] D. L. Parnas. "Designing Software for Ease of Extension and Contraction". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Atlanta, GA, USA: IEEE Press, May 1978, pp. 264–277.
- [1] G. A. Kildall. "A Unified Approach to Global Program Optimization". In *Proc. Symp. Principles of Programming Languages (POPL)*. Boston, MA, USA: ACM, Oct. 1973, pp. 194–206.

Technical Reports

- [4] J. Newsome and D. Song. *Dynamic Taint Analysis for Automatic Detection, Analysis, and Signature Generation of Exploits on Commodity Software*. CMU-CS-04-140. Carnegie Mellon University, 2005.
- [3] R. E. Filman and D. P. Friedman. *Aspect-Oriented Programming is Quantification and Obliviousness*. Technical Report. NASA, 2000.
- [2] R. Kazman, M. Klein, and P. Clements. *ATAM: Method for Architecture Evaluation*. Technical Report CMU/SEI-2000-TR-004. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 2000.
- [1] D. Garlan and M. Shaw. *An Introduction to Software Architecture*. Technical Report CMU-CS-94-166. Carnegie Mellon University, Jan. 1994.

Part of Books

[1] M. Shaw. "The Role of Design Spaces". In M. Petre and A. van der Hoek. *Software Designers in Action: A Human-Centric Look at Design Work*. CRC Press, 2013.

Miscellaneous

- [7] M. Anders and M. I. Schwartzbach. Static Program Analysis. 2017.
- [6] M. Velez and J. Sawin. *Improving the Efficiency of CHA through Parallelization*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2016.
- [5] M. Velez and J. Sawin. Faster WAH Compression Querying through the Use of Metadata. Poster. Consortium for Computing Sciences in Colleges Midwest Region. 1st place Discovery Track. Evansville, IN, USA, Oct. 2015.
- [4] M. Velez and A. Solar-Lezama. *Simpler Implementation of Sketches through Enhanced Expressiveness*. Poster. MIT Summer Research Poster Session. Cambridge, MA, USA, Aug. 2015.
- [3] M. Velez. *Current and Future Relationships Between Robots and Humans*. Summa Cum Laude Paper. Apr. 2015.
- [2] M. Velez, P. Gittins, and J. Sawin. *Extending SMILES to Encode Reaction Mechanisms*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2014.
- [1] M. I. Schwartzbach. Lecture Notes on Static Analysis. 2008.