Miguel Velez

Publications

Books

- [10] Amy Brown and Greg Wilson. *The Architecture of Open Source Applications, Volume II.* The Architecture of Open Source Applications v. 2. Kristian Hermansen, 2012.
- [9] Amy Brown and Greg Wilson. *The Architecture of Open Source Applications, Volume I.* The Architecture of Open Source Applications v. 1. CreativeCommons, 2011.
- [8] Frederick P. Brooks. *The Design of Design: Essays from a Computer Scientist*. 1st edition. Addison-Wesley Professional, 2010.
- [7] Robert Yin. Case Study Research: Design and Methods. 4th edition. Applied Social Research Methods. SAGE Publications, 2009.
- [6] Peter Feiler, Kevin Sullivan, Kurt Wallnau, Richard Gabriel, John Goodenough, Richard Linger, Thomas Longstaff, Rick Kazman, Mark Klein, Linda Northrop, and Douglas Schmidt. *Ultra-Large-Scale Systems: The Software Challenge of the Future*. Software Engineering Institute, Carnegie Mellon University, 2006.
- [5] Paul Clements, Bachmann Felix, Len Bass, David Garlan, James Ivers, Reed Little, Paulo Merson, Robert Nord, and Judith Stafford. *Documenting Software Architectures: Views and Beyond*. Pearson Education, 2002.
- [4] Mary Shaw and David Garlan. *Software Architecture: Perspectives on an Emerging Discipline.* Upper Saddle River, NJ, USA: Prentice-Hall, Inc., 1996.
- [3] Herbert A. Simon. *The Sciences of the Artificial (3rd Ed.)* Cambridge, MA, USA: MIT Press, 1996.
- [2] Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides. *Design Patterns: Elements of Reusable Object-oriented Software*. Boston, MA, USA: Addison-Wesley Longman Publishing Co., Inc., 1995.
- [1] Daniel P. Siewiorek, C. Gordon Bell, and Allen Newell. *Computer structures: principles and examples*. McGraw-Hill computer science series. McGraw-Hill, 1987. Chap. 2, Levels and Abstraction.

Refereed Journal Articles

- [21] Brad A. Myers, Andrew J. Ko, Thomas D. LaToza, and YoungSeok Yoon. "Programmers Are Users Too: Human-Centered Methods for Improving Programming Tools". In *Computer* 49.7 (July 2016), pp. 44–52.
- [20] Brad A. Myers and Jeffrey Stylos. "Improving API Usability". In *Commun. ACM* 59.6 (May 2016), pp. 62–69.
- [19] Jeffrey M. Barnes, David Garlan, and Bradley Schmerl. "Evolution Styles: Foundations and Models for Software Architecture Evolution". In Softw. Syst. Model. (SoSyM) 13.2 (May 2014), pp. 649–678.
- [18] Gordon Bell and Daniel P. Siewiorek. "The Book Computer Structures: Thoughts After 40 Years". In *IEEE Ann. Hist. Comput.* 33.2 (Apr. 2011), pp. 89–95.
- [17] Willemien Visser. "Designing as construction of representations: A dynamic viewpoint in cognitive design research". In *Human–Computer Interaction* 21.1 (2006), pp. 103–152.
- [16] Bradley Schmerl, Jonathan Aldrich, David Garlan, Rick Kazman, and Hong Yan. "Discovering Architectures from Running Systems". In *IEEE Trans. Softw. Eng. (TSE)* 32.7 (July 2006), pp. 454–466.
- [15] Joseph F. Maranzano, Sandra A. Rozsypal, Gus H. Zimmerman, Guy W. Warnken, Patricia E. Wirth, and David M. Weiss. "Architecture Reviews: Practice and Experience". In *IEEE Softw.* 22.2 (Mar. 2005), pp. 34–43.
- [14] David Garlan, Shang-Wen Cheng, An-Cheng Huang, Bradley Schmerl, and Peter Steenkiste. "Rainbow: Architecture-Based Self-Adaptation with Reusable Infrastructure". In *Computer* 37.10 (Oct. 2004), pp. 46–54.
- [13] Audris Mockus, Roy T. Fielding, and James 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.
- [12] Gail C. Murphy and David Notkin. "Reengineering with Reflexion Models: A Case Study". In *Computer* 30.8 (Aug. 1997), pp. 29–36.
- [11] David Garlan, Robert Allen, and John Ockerbloom. "Architectural Mismatch: Why Reuse Is So Hard". In *IEEE Softw.* 12.6 (Nov. 1995), pp. 17–26.
- [10] Robert E. Kraut and Lynn A. Streeter. "Coordination in Software Development". In *Commun. ACM* 38.3 (Mar. 1995), pp. 69–81.
- [9] Bill Curtis, Herb Krasner, and Neil Iscoe. "A Field Study of the Software Design Process for Large Systems". In *Commun. ACM* 31.11 (Nov. 1988), pp. 1268–1287.
- [8] David Harel. "Statecharts: A Visual Formalism for Complex Systems". In *Sci. Comput. Program.* 8.3 (June 1987), pp. 231–274.
- [7] Mary Shaw. "The impact of abstraction concerns on modern programming languages". In *Proceedings of the IEEE* 68.9 (1980), pp. 1119–1130.

- [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] Frank DeRemer and Hans 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] Horst W. J. Rittel and Melvin M. Webber. "Dilemmas in a general theory of planning". In *Policy Sciences* 4.2 (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] Melvin E Conway. "How do committees invent?" In *Datamation* 14.4 (1968), pp. 28–31.

Refereed Conference Publications

- [30] Bogdan Vasilescu, Kelly Blincoe, Qi Xuan, Casey Casalnuovo, Daniela Damian, Premkumar Devanbu, and Vladimir Filkov. "The Sky is Not the Limit: Multitasking Across GitHub Projects". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Austin, Texas: ACM, 2016, pp. 994–1005.
- [29] Lili Wei, Yepang Liu, and Shing-Chi 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.
- [28] Miguel Velez, Jason Sawin, Alexia Ingerson, and David Chiu. "Improving Bitmap Execution Performance Using Column-Based Metadata". In *The IEEE 4th International Conference on Future Internet of Things and Cloud (FiCloud)*. Vienna, Austria, Aug. 2016. (30% acceptance rate).
- [27] Prasad Kawthekar and Christian Kästner. "Sensitivity Analysis For Building Evolving & Adaptive Robotic Software". In *Proceedings of the IJCAI Workshop on Autonomous Mobile Service Robots (WSR)*. New York, NY, USA, July 2016.
- [26] Michael Eichberg, Ben Hermann, Mira Mezini, and Leonid 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.
- [25] Norbert Siegmund, Alexander Grebhahn, Sven Apel, and Christian 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.
- [24] David Garlan. "Software Architecture: A Travelogue". In *Proceedings of the on Future of Software Engineering (FOSE)*. Hyderabad, India: ACM, June 2014, pp. 29–39.
- [23] Norbert Siegmund, Norbert von Rhein, and Sven Apel. "Family-Based Performance Measurement". In *Proc. Int'l Conf. Generative and Component-Based Software Engineering (GCSE)*. Indianapolis, IN, USA: ACM, 2013, pp. 95–104.
- [22] Laura Dabbish, Colleen Stuart, Jason Tsay, and Jim 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, 2012, pp. 1277–1286.
- [21] David Garlan, Vishal Dwivedi, Ivan Ruchkin, and Bradley Schmerl. "Foundations and Tools for End-user Architecting". In *Proceedings of the Conference on Large-Scale Complex IT Systems: Development, Operation and Management*. Oxford, UK: Springer-Verlag, 2012, pp. 157–182.
- [20] Abram Hindle, Earl T. Barr, Zhendong Su, Mark Gabel, and Premkumar Devanbu. "On the Naturalness of Software". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Zurich, Switzerland: IEEE Press, 2012, pp. 837–847.

- [19] Ali Niknafs and Daniel 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.
- [18] Dalal Alrajeh, Jeff Kramer, Axel van Lamsweerde, Alessandra Russo, and Sebastián Uchitel. "Generating Obstacle Conditions for Requirements Completeness". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Zurich, Switzerland: IEEE Press, June 2012, pp. 705–715.
- [17] Zuoning Yin, Ding Yuan, Yuanyuan Zhou, Shankar Pasupathy, and Lakshmi Bairavasundaram. "How Do Fixes Become Bugs?" In *Proc. Europ. Software Engineering Conf. Foundations of Software Engineering (ESEC/FSE)*. Szeged, Hungary: ACM, 2011, pp. 26–36.
- [16] Joshua Sunshine, Karl Naden, Sven Stork, Jonathan Aldrich, and Éric 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.
- [15] Ajinkya Bhave, Bruce Krogh, David Garlan, and Bradley Schmerl. "View Consistency in Architectures for Cyber-Physical Systems". In *International Conference on Cyber-Physical Systems* (ICCPS). Chicago, IL, USA: IEEE Computer Society Press, Apr. 2011, pp. 151– 160.
- [14] Neil Maiden, Sara Jones, Kristine Karlsen, Roger Neill, Konstantinos Zachos, and Alastair 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.
- [13] Pete Sawyer, Nelly Bencomo, Jon Whittle, Emmanuel Letier, and Anthony 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.
- [12] Jorge Aranda and Gina 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, 2009, pp. 298–308.
- [11] Uri Dekel and James 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.
- [10] Nachiappan Nagappan, Brendan Murphy, and Victor Basili. "The Influence of Organizational Structure on Software Quality: An Empirical Case Study". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Leipzig, Germany: ACM, 2008, pp. 521–530.
- [9] Hausi Müller, Mauro Pezzè, and Mary Shaw. "Visibility of Control in Adaptive Systems". In *Proceedings of the International Workshop on Ultra-Large-Scale Software-Intensive Systems (ULSSIS)*. Leipzig, Germany: ACM, May 2008, pp. 23–26.

- [8] Jorge Aranda, Steve Easterbrook, and Greg 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.
- [7] David Garlan and Bradley Schmerl. "Architecture-driven Modelling and Analysis". In *Proceedings on Safety Critical Systems and Software (SCS)*. Melbourne, Australia: Australian Computer Society, Inc., Aug. 2006, pp. 3–17.
- [6] Axel 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.
- [5] Colin Potts and Wendy 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, 1997, pp. 118–127.
- [4] Orlena Gotel and Anthony Finkelstein. "Contribution Structures". In *Proc. Int'l Requirements Engineering Conf. (RE)*. York, U.K.: IEEE Computer Society, 1995, pp. 100–107.
- [3] Michael Jackson. "The World and the Machine". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Seattle, WA, USA: ACM, 1995, pp. 283–292.
- [2] Robert Allen and David Garlan. "Formalizing Architectural Connection". In *Proc. Int'l Conf. Software Engineering (ICSE)*. Sorrento, Italy: IEEE Computer Society Press, May 1994, pp. 71–80.
- [1] 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.

Technical Reports

- [2] Rick Kazman, Mark Klein, and Paul Clements. *ATAM: Method for Architecture Evaluation*. Technical Report CMU/SEI-2000-TR-004. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 2000.
- [1] David Garlan and Mary Shaw. *An Introduction to Software Architecture*. Technical Report CMU-CS-94-166. CMU, Jan. 1994.

Part of Books

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

Miscellaneous

- [5] Miguel Velez and Jason Sawin. *Improving the Efficiency of CHA through Parallelization*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2016.
- [4] Miguel Velez and Jason 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.
- [3] Miguel Velez and Armando Solar-Lezama. *Simpler Implementation of Sketches through Enhanced Expressiveness*. Poster. MIT Summer Research Poster Session. Cambridge, MA, USA, Aug. 2015.
- [2] Miguel Velez. *Current and Future Relationships Between Robots and Humans*. Summa Cum Laude Paper. Apr. 2015.
- [1] Miguel Velez, Peter Gittins, and Jason Sawin. *Extending SMILES to Encode Reaction Mechanisms*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2014.