▶Nico Zazworka, Ph.D.

Research Scientist
Fraunhofer Center for Experimental Software Engineering

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Education

University of Maryland, College Park, USA
       Ph.D., Computer Science (Dec 2010)

University of Maryland, College Park, USA
       M.S., Computer Science (May 2009)

University of Applied Sciences Mannheim, Germany
       Diplom Informatik (FH), Computer Science (Dec 2006)

Professional Experience

Research Scientist (Feb 2011– present)
Fraunhofer Center for Experimental Software Engineering, College Park, MD

Graduate Research Assistant (Feb 2007– Dec 2010)
University of Maryland, College Park, MD

Graduate Research Internship (June-August 2009 and June-August 2010)
Fraunhofer Center for Experimental Software Engineering, College Park, MD

Software Developer (2004-2006)
Comvos Online Medien GmbH, Mannheim, Germany

Software Developer (2003)
Digistage GmbH, Kaiserslautern, Germany

System Administration (1998-1999)
Bopp & Reuther GmbH, Mannheim, Germany

Research and Work Focus

▶ Empirical studies in the field of software engineering to:
  ▶ Evaluate how existing data sources, such as configuration management systems, can help to unobtrusively and quantitatively assess **Process Performance and Conformance** of software development processes. References: [2011c][2010b][2009a] and Ph.D. Dissertation
  ▶ Understand the applicability and utility of the **Technical Debt** metaphor in software projects, as well as, evaluating the effectiveness of program analysis techniques to identify code and design debt. References: [2012a][2012c] [2012e] [2011a][2011b][2011d][2010a]
  ▶ Evaluating how **Code Smells** and static analysis tools can help to predict defect and change prone code. References: [2011b][2010c][2010e][2009b]
  ▶ Design efficient visualization techniques that help identifying **Security Attacks**. References: [2012b]
  ▶ Bridge the gap between software measurement and quality and business goals of organizations. References: [2012a]
  ▶ Improve developer productivity when implementing software on massively parallel **High Performance Computing** devices (HPC). References: [2008a][2008b][2007a][2007b][2006a]
▶ Professional consulting services for organizations implementing the CMMI process maturity model. Specific focus on consultation for CMMI high maturity practices that require quantitative and statistical measurement (Levels 4+5).

Personal References

▶ For personal feedback on my work please inquire by email or phone:
  ▶ Dr. Forrest Shull (current supervisor)
    Editor-in-Chief, IEEE Software Magazine
    Director, Measurement and Knowledge Management Division, Fraunhofer CESE
    Adjunct Professor, Computer Science Dept., University of Maryland College Park
    Email: fshull@fc-md.umd.edu
    Phone: +1-240-487-2904
  ▶ Prof. Dr. Victor R. Basili (Ph.D. advisor)
    Professor Emeritus
    University of Maryland
    Email: basili@cs.umd.edu
    Phone: +1-301-405-2668
  ▶ Prof. Dr. Carolyn Seaman (academic collaborator on Technical Debt research)
    Associate Professor
    The University of Maryland, Baltimore County (UMBC)
    Email: cseaman@umbc.edu
    Phone: +1-401-455-3937

Professional Training

▶ Introduction to Capability Maturity Model Integration (CMMI) V1.2, September 2010
▶ CMMI-DEV V1.3 Upgrade Training, June 2011

Dissertation

▶ Nico Zazworka: "Process Conformance Testing: A Methodology to Identify and Understand Process Violations in Enactment of Software Processes", supervised by Prof. Dr. Victor R. Basili, Dec 2010, University of Maryland, College Park

Awards and Certificates

▶ Best Paper Award ESEM2010 (Full Papers): "Are Developers Complying with the Process: An XP Study" by Nico Zazworka, Kai Stapel, Eric Knauss, Forrest Shull, Victor Basili and Kurt Schneider, presented at 4th International Symposium on Empirical Software Engineering and Measurement (ESEM), Bolzano, 2010

▶ Certificate of Appreciation, IEEE Computer Society, for participating in the Lockheed Martin/IEEE-CS webinar series: Computer-Assisted Approaches for Identifying and Tracking Technical Debt, June 2012

Other Accomplishments and Responsibilities

▶ CMMI consultant specializing on high maturity practices and appraisal member for successful CMMI-DEV v.1.3 Level 5 appraisal at Keymind, a Division of Axiom Resource Management, March 2012

▶ Recruiter and supervision of student internship program at Fraunhofer CESE.

▶ Project manager and lead architect of several tools supporting software measurement: CodeVizard (60kLOC), Measurement Reporting Tool for CMMI L5 customer (25kLOC), Software Desktop (30kLOC)

▶ Member of Experimental Software Engineering Group (ESEG) at University of Maryland

▶ Reviewer for the following Software Engineering Journals
  ▶ Empirical Software Engineering Journal, Springer
  ▶ Journal of Systems and Software, Elsevier
  ▶ Journal of the Brazilian Computer Society, Springer

Publications by Year (References)

▶ 2012
  ▶ [2012a] Antonio Vetro', Nico Zazworka, Carolyn Seaman, Forrest Shull: Using the ISO/IEC 9126 product quality model to classify defects : a Controlled Experiment, to appear at EASE 2012
  ▶ [2012b] Carolyn Seaman, Yuepu Guo, Clemente Izurieta, Yuanfang Cai, Nico Zazworka, Forrest Shull and Antonio Vetro': "Using Technical Debt Data in Decision Making: Potential Decision Approaches" MTD2012: 3rd Workshop on Managing Technical Debt, at ICSE 2012, Zurich, Switzerland
  ▶ [2012c] Clemente Izurieta, Antonio Vetro, Nico Zazworka, Yuanfang Cai, Carolyn Seaman and Forrest Shull: "Organizing the Technical Debt Landscape" MTD2012: 3rd Workshop on Managing Technical Debt, at ICSE 2012, Zurich, Switzerland
  ▶ [2012d] Lucas Layman and Nico Zazworka: "InViz: Instant Visualization of Security Attacks", Poster, to be presented at IEEE S&P 2012, San Francisco, USA
  ▶ [2012e] Carolyn Seaman and Nico Zazworka: IEEE/Lockheed Martin Webinar on "Computer-Assisted Approaches for Identifying and Tracking Technical Debt", 280 attendees
  ▶ [2012f] Nico Zazworka and Carolyn Seaman: Webinar on "Technical Debt" for Boeing USA, 250 attendees

▶ 2011
  ▶ [2011a] Nico Zazworka, Carolyn Seaman, Forrest Shull: "Prioritizing Design Debt Investment Opportunities" MTD2011: 2nd Workshop on Managing Technical Debt at ICSE, 2011, Honolulu, Hawaii, USA

▶ [2011b] Nico Zazworka, Michele A. Shaw, Forrest Shull, Carolyn Seaman : "Investigating the Impact of Design Debt on Software Quality" MTD2011: 2nd Workshop on Managing Technical Debt at ICSE, 2011, Honolulu, Hawaii, USA

▶ [2011c] Kai Stapel, Eric Knauss, Kurt Schneider, Nico Zazworka: FLOW Mapping: Planning and Managing Communication in Distributed Teams, Sixth IEEE International Conference on Global Software Engineering (ICGSE2011), Helsinki, Finland, August 15-18, 2011.

▶ [2011d] Carolyn Seaman and Nico Zazworka: IEEE/Lockheed Martin Webinar on "Identifying and Managing Technical Debt", Nov 2011, 600 attendees

▶ 2010
  ▶ [2010a] Brown, N., Cai, Y., Guo, Y. , Kazman, R. , Kim, M., Kruchten, P., Lim, E., MacCormack, A., Nord, R., Ozkaya, I., Sangwan, R., Seaman, C., Sullivan, K., Zazworka, N. : "Managing Technical Debt in Software-Reliant Systems" FoSeR '10: Workshop on the Future of Software Engineering Research, 4 pages, 2010

  ▶ [2010b] Nico Zazworka, Kai Stapel, Eric Knauss, Forrest Shull, Victor Basili, Kurt Schneider: Are Developers Complying with the Process: An XP Study, presented at 4th International Symposium on Empirical Software Engineering and Measurement (ESEM), Bolzano, 2010 (Best Paper Award)

  ▶ [2010c] Jan Schumacher, Nico Zazworka, Forrest Shull, Carolyn Seaman, Michele Shaw: Building Empirical Support for Automated Code Smell Detection, presented at 4th International Symposium on Empirical Software Engineering and Measurement (ESEM), Bolzano, 2010

  ▶ [2010d] Nico Zazworka and Christopher Ackermann: CodeVizard: a Tool to Aid the Analysis of Software Evolution, Poster Presentation, presented at 4th International Symposium on Empirical Software Engineering and Measurement (ESEM), Bolzano, 2010

  ▶ [2010e] Yuepo Gou, Carolyn Seaman, Nico Zazworka, Forrest Shull: "Domain-Specific Tailoring of Code Smells: An Empirical Study", ICSE 2010 (Short Paper)

▶ 2009
  ▶ [2009a] Nico Zazworka, Victor Basili, Forrest Shull: "Tool Supported Detection and Judgment of Nonconformance in Process Execution", 3rd International Symposium on Empirical Software Engineering and Measurement (ESEM), 2009

  ▶ [2009b] Steffen Olbrich, Daniela S. Cruzes, Victor Basili, Nico Zazworka: "The Evolution and Impact of Code Smells: A Case Study of Two Open Source Systems", 3rd International Symposium on Empirical Software Engineering and Measurement (ESEM), 2009

▶ 2008
  ▶ [2008a] Victor Basili, Thiago Craveiro, Daniela Cruzes, Kate Despain, Bill Dorland, Lorin Hochstein , Nico Zazworka, Marvin Zelkowitz: "Large Efficient Table-Top Teraflop Computing", presented at First International Workshop on Software Engineering for Computational Science and Engineering, 2008, Leipzig, Germany

  ▶ [2008b] Lorin Hochstein, Taiga Nakamura, Forrest Shull, Nico Zazworka, Victor R. Basili, and Marvin V. Zelkowitz, "An Environment for Conducting Families of Software Engineering Experiments", in Advances in Computers 74, M.V. Zelkowitz, ed., Elsevier, pp. 175-200, 2008.

▶ 2006-2007
  ▶ [2007a] Rola Alameh, Nico Zazworka, Jeffrey K. Hollingsworth: "Performance Measurement of Novices HPC Programmers' Code", Proceedings of the 3rd International Workshop on Software

Engineering for High Performance Computing Applications, 2007, Minneapolis, Minnesota, USA

▶ [2007b] L. Hochstein, T. Nakamura, F. Shull, N. Zazworka, M. Voelp, M.V. Zelkowitz, and V. Basili: "An Environment of Conducting Families of Software Engineering Experiments", University of Maryland, CS-TR-4851 and UMIACS-TR-2007-28, May 2007

▶ [2006a] Lorin Hochstein, Taiga Nakamura, Victor R. Basili, Sima Asgari, Marvin V. Zelkowitz, Jeffrey K. Hollingsworth, Forrest Shull, Jeffrey Carver, Martin Voelp, Nico Zazworka, Philip Johnson: "Experiments to Understand HPC Time to Development", CTWatch Quarterly, Vol 2, No. 4A, November 2006