

Ivo Krka, M.Sc.

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EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA:	Los Angeles, CA, USA
8/2013 Doctor of Philosophy in Computer Science	
Dissertation: Deriving Component-Level Behavior Models from Scenario-Based Requirements	
Advisor: Prof. Nenad Medvidović	
GPA: 4.0/4.0	
5/2009 Master of Science in Computer Science	
UNIVERSITY OF ZAGREB:	Zagreb, Croatia
5/2007 Master of Engineering in Computing	
Advisor: Prof. Siniša Srbljić	
GPA: 5.0/5.0	

EMPLOYMENT HISTORY

UNIVERSITY OF SOUTHERN CALIFORNIA:	Los Angeles, CA, USA
8/2007 – present	Research Assistant Center for Systems and Software Engineering
8/2009 – 05/2010	Teaching Assistant Department of Computer Science
QUANDARY PEAK RESEARCH:	Los Angeles, CA, USA
5/2013 – present	Consulting Expert Software Litigation Consulting
UNIVERSITY OF BUENOS AIRES:	Buenos Aires, Argentina
4/2013 – 5/2013	Visiting Researcher Department of Computer Science
INFOSYS LIMITED:	Bangalore, India
7/2012 – 8/2012	Visiting Researcher Software Engineering Lab
GOOGLE INC:	Santa Monica, CA, USA
6/2009 – 8/2009	Software Engineering Intern YouTube Engineering
UNIVERSITY OF ZAGREB:	Zagreb, Croatia
10/2005 – 5/2007	Teaching Assistant Department of Computing and Intelligent Systems

HONORS, AWARDS, FELLOWSHIPS

- 2007–11 University of Southern California, Provost's Fellowship
- 2009 University of Southern California, Outstanding Research Assistant
- 2009 Google Inc, Outstanding Intern Scholarship
- 2009 ACM SIGSOFT, CAPS Travel Award
- 2008 Croatian Ministry of Science, Education, and Sports, Graduate Student Scholarship
- 2007 University of Zagreb, Top Graduating Student of Computing
- 2002–07 Croatian Ministry of Science, Education, and Sports, Undergraduate Student Scholarship
- 2006–07 Nacional Magazine, "Top Scholarship for Top Students" Competition Finalist
- 2003–06 University of Zagreb, Dean's Honor List
- 2004 Entry Exam, Faculty of Business and Economics, University of Zagreb, 2nd Place
- 2002 Entry Exam, Faculty of Electrical Engineering and Computing, University of Zagreb, 1st Place
- 2000 Croatian High School Mathematics Competition, 3rd Place

PUBLICATIONS

JOURNAL ARTICLES

- TSC 2013 Marin Šilić, Goran Delač, **Ivo Krka**, Siniša Srblijić. Scalable and Accurate Prediction of Availability of Atomic Web Services. *IEEE Transactions on Services Computing*, To Appear.
- Computer Nenad Medvidović, Hossein Tajalli, Joshua Garcia, **Ivo Krka**, Yuriy Brun, George Edwards.
2011 Engineering Heterogeneous Robotics Systems: A Software Architecture-Based Approach. *IEEE Computer*, vol. 44, no. 5, May 2011.
- JSS 2010 Sam Malek, George Edwards, Yuriy Brun, Hossein Tajalli, Joshua Garcia, **Ivo Krka**, Nenad Medvidović, Marija Mikic-Rakic, Gaurav Sukhatme. An Architecture-Driven Software Mobility Framework. *Journal of Systems and Software*, vol. 83, no. 6, June 2010.

CONFERENCE PUBLICATIONS

- RE 2013 **Ivo Krka**, Nenad Medvidović. Distributing Refinements of a System-Level Partial Behavior Model. In *Proceedings of the 21st IEEE International Requirements Engineering Conference*, Rio de Janeiro, Brazil, July 2013.
- ICSE SEIP Joshua Garcia, **Ivo Krka**, Chris Mattmann, Nenad Medvidović. Obtaining Ground-Truth
2013 Software Architectures. In *Proceedings of the 35th International Conference on Software Engineering*, Software Engineering in Practice Track, San Francisco, USA, May 2013.
- ICPE 2012 Leslie Cheung, **Ivo Krka**, Leana Golubchik, Nenad Medvidović. Architecture-Level Reliability Prediction of Concurrent Systems. In *Proceedings of the 3rd ACM International Conference on Performance Engineering*, Boston, USA, April 2012.

ESEC/FSE 2009 **Ivo Krka**, Yuriy Brun, George Edwards, Nenad Medvidović. Synthesizing Partial Component-Level Behavior Models from System Specifications. In *Proceedings of the 7th Joint Meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on Foundations of Software Engineering*, Amsterdam, Netherlands, August 2009.

SHORT CONFERENCE PUBLICATIONS

WICSA/ECSA 2012 Joshua Garcia, **Ivo Krka**, Nenad Medvidović, Chris Douglas. A Framework for Obtaining the Ground-Truth in Architectural Recovery. In *Proceedings of the Joint Working IEEE/IFIP Conference on Software Architecture & European Conference on Software Architecture*, Helsinki, Finland, August 2012.

FSE 2010 Doct. **Ivo Krka**. From Requirements to Partial Behavior Models: an Iterative Approach to Incremental Specification Refinement. In *Proceedings of the 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Doctoral Symposium, Santa Fe, USA, November 2010.

ICSE 2010 NIER **Ivo Krka**, Yuriy Brun, Daniel Popescu, Joshua Garcia, Nenad Medvidović. Using Dynamic Execution Traces and Program Invariants to Enhance Behavioral Model Inference. In *Proceedings of the 32nd International Conference on Software Engineering*, New Ideas and Emerging Results Track, Cape Town, South Africa, May 2010.

WICSA/ECSA 2009 Chris Mattmann, Joshua Garcia, **Ivo Krka**, Daniel Popescu, Nenad Medvidović. The Anatomy and Physiology of the Grid Revisited. In *Proceedings of the Joint Working IEEE/IFIP Conference on Software Architecture & European Conference on Software Architecture*, Cambridge, UK, September 2009.

ESEC/FSE 2009 Doct. **Ivo Krka**. Synthesizing and Utilizing Partial-Behavior Models During Requirements Elicitation. In *Proceedings of the 7th Joint Meeting of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Doctoral Symposium, Amsterdam, Netherlands, August 2009.

ICSE 2009 NIER **Ivo Krka**, George Edwards, Yuriy Brun, Nenad Medvidović. From System Specifications to Component Behavioral Models. In *Proceedings of the 31st International Conference on Software Engineering*, New Ideas and Emerging Results Track, Vancouver, Canada, May 2009.

BOOK CHAPTERS

ADS 2009 **Ivo Krka**, George Edwards, Leslie Cheung, Leana Golubchik, Nenad Medvidović. A Comprehensive Exploration of Challenges in Architecture-based Reliability Estimation. *Architecting Dependable Systems VI*, Lecture Notes in Computer Science, 2009.

WORKSHOP PUBLICATIONS

CHASE 2013 Jae Young Bang, **Ivo Krka**, Nenad Medvidović, Naveen Kulkarni, and Srinivas Padmanabhuni. How Software Architects Collaborate: Insights from Collaborative Software Design in Practice. In *Proceedings of the ICSE Workshop on Cooperative and Human Aspects of Software Engineering*, San Francisco, USA, May 2013.

FormSERA 2012 **Ivo Krka**, Nenad Medvidović. Revisiting Modal Interface Automata. In *Proceedings of the ICSE Workshop on Formal Methods in Software Engineering: Rigorous and Agile Approaches*, Zurich, Switzerland, May 2012.

- QUOVADIS 2010 **Ivo Krka**, Leana Golubchik, Nenad Medvidović. Probabilistic Automata for Architecture-Based Reliability Assessment. In *Proceedings of the ICSE 2010 Workshop on Quantitative Stochastic Models in the Verification and Design of Software Systems*, Cape Town, South Africa, May 2010.
- WADS 2008 **Ivo Krka**, Leslie Cheung, George Edwards, Leana Golubchik, and Nenad Medvidović. Architecture-Based Software Reliability Estimation: Problem Space, Challenges, and Strategies. In *Proceedings of the DSN Workshop on Architecting Dependable Systems*, Anchorage, USA, June 2008.

THESES AND TECHNICAL REPORTS

- SERC 2012 Douglas A. Bodner, Nenad Medvidović, JoAnn Lane, Barry W. Boehm, William C. Kessler, William B. Rouse, George Edwards, Kristi Kirkland, **Ivo Krka**, Animesh Podar, Daniel Popescu. RT-25 Final Report: Requirements Management for Net-Centric Enterprises. Technical Report, Systems Engineering Research Center, January 2012.
- Qual. 2011 **Ivo Krka**. Deriving Component-Level Behavior Models from Scenario-Based Requirements. Qualifying Report, Department of Computer Science, University of Southern California, December 2011.
- SERC 2011 Douglas A. Bodner, Nenad Medvidović, William B. Rouse, Barry W. Boehm, Richard A. DeMillo, George Edwards, Daniyal Khan, **Ivo Krka**, JoAnn Lane, Aditya Pradhan. RT-25 Phase I: Requirements Management for Net-Centric Enterprises. Technical Report, Systems Engineering Research Center, April 2011.
- CSSE 2010 **Ivo Krka**, Nenad Medvidović. Supporting Refinement of Partial Behavior Models Under Model Composition and Abstraction. Technical Report, Computer for Systems and Software Engineering, University of Southern California, Los Angeles, CA, USA, May 2010.
- FER 2007 **Ivo Krka**. Personalized Navigation System Based on Service Composition. Master Thesis, Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia, May 2007.
- ETK 2005 **Ivo Krka**. Geographic Navigation System Simulation. *Exploring ICT Frontiers: Agents, IP Multimedia Subsystem, and Distributed Computing* (Saša Dešić et al.), Technical Report, Ericsson Nikola Tesla, Zagreb, Croatia, September 2005.

POSTERS AND FORMAL PRESENTATIONS

“Revisiting Modal Interface Automata”

- Presentation, Visiting Lecture, Buenos Aires, Argentina, April 2013.
- Presentation, ICSE FormSERA Workshop, Zurich, Switzerland, June 2012.

“caTS: Towards Accurate and Concise Scenario Specifications”

- Poster, UCI ISR Research Forum, Irvine, USA, May 2012.

“Capturing Knowledge in an Integration Matrix”

- Poster, UCI ISR Research Forum, Irvine, USA, May 2012.
- Poster, USC Computer Science Annual Research Review, Los Angeles, USA, March 2012.
- Poster, SERC Annual Research Review, College Park, USA, October 2011.

“iCBSP: Moving from Integration Requirements to an Integration Architecture”

- Poster, UCI ISR Research Forum, Irvine, USA, May 2012.
- Poster, USC Computer Science Annual Research Review, Los Angeles, USA, March 2012.

- Poster, SERC Annual Research Review, College Park, USA, October 2011.
- “Architecture-Level Reliability Prediction of Concurrent Systems”
 - Presentation, ICPE, Boston, USA, April 2012.
- “CoDesign — A Collaborative Software Design Environment”
 - Presentation, Infosys Site Visit, Los Angeles, CA, April 2012.
- “Requirements and Architectures for System-of-Systems Integration”
 - Presentation, USC CSSE Annual Research Review, Los Angeles, USA, March 2012.
- “Requirements Management for Net-Centric Enterprises”
 - Poster, USC CSSE Annual Research Review, Los Angeles, USA, March 2012.
 - Poster and Presentation, SERC Annual Research Review, College Park, USA, October 2011.
- “From System Specifications to Component Behavioral Models”
 - Poster, USC Computer Science Annual Research Review, Los Angeles, USA, March 2011.
 - Poster, UCI ISR Research Forum, Irvine, CA, USA, June 2009.
 - Poster and Presentation, ICSE NIER Track, Vancouver, Canada, May 2009.
- “From Requirements to Partial Behavior Models”
 - Presentation, FSE Doctoral Symposium, Santa Fe, USA, November 2010.
- “Using Dynamic Execution Traces and Program Invariants to Enhance Behavioral Model Inference”
 - Poster and Presentation, ICSE NIER Track, Cape Town, South Africa, May 2010.
- “Probabilistic Automata for Architecture-Based Reliability Assessment”
 - Presentation, QUOVADIS 2010, Cape Town, South Africa, May 2010.
- “SHARP: A Scalable Approach to Architecture-Level Reliability Prediction of Concurrent Systems”
 - Presentation, QUOVADIS 2010, Cape Town, South Africa, May 2010.
- “Partial Behavior Models as a Driver of Requirements Elicitation”
 - Presentation, USC CS Department Annual Research Review, Los Angeles, USA, April 2010.
- “Synthesizing Partial Component-Level Behavior Models”
 - Presentation, USC CSSE Annual Research Review, Los Angeles, USA, March 2010.
 - Presentation, ESEC/FSE Research Paper Track, Amsterdam, Netherlands, August 2009.
- “Exploring and Evaluating Metadata for Video Classification”
 - Presentation, Intern Project, Google Inc, Santa Monica, USA, August 2009.
- “Synthesizing Component-Level Partial Behavior Models from Scenarios and Constraints”
 - Presentation, USC CSSE Annual Research Review, Los Angeles, USA, March 2009.
- “Architecture-Based Software Reliability Estimation: Problem Space, Challenges, and Strategies”
 - Presentation, DSN WADS Workshop, Anchorage, USA, June 2008.
 - Poster, UCI ISR Research Forum, Irvine, USA, June 2008.
- “An Architectural Approach to Robotics Software Design, Implementation, and Deployment”
 - Presentation, USC CSSE Annual Research Review, Los Angeles, USA, March 2008.
- “Personalized Navigation System Based on Service Composition”
 - Presentation, Master Thesis Defense, University of Zagreb, Zagreb, Croatia, May 2007.
- “Geographic Navigation System Simulation”

— Presentation, Intern Project, Ericsson Nikola Tesla, Zagreb, Croatia, September 2005.

RESEARCH ACTIVITIES

PROJECT PARTICIPATION

NSF SHF: “From Scenario-Based Software Requirements to Component-Level Behavior” (USC)
Infosys: “CoDesign — A Collaborative Software Design Environment” (USC and Infosys)
SERC RT-25: “Requirements for Net-Centric Enterprises” (USC and Georgia Tech)
NSF CSR: “Engineering Reliability into Hybrid Systems” (USC)
NSF ITR: “Software Architectural Support for Programming-in-the-Small-and-Many” (USC)

TEACHING ACTIVITIES

TEACHING ASSISTANT

CS 499: Modeling Software-Intensive Systems (USC) Spring 2011
CS 578: Software Architectures (USC) Fall 2010

CURRICULUM DESIGN

CS 499: Modeling Software-Intensive Systems (USC, assisted Nenad Medvidović) Spring 2011

GUEST LECTURING

CS 568: Requirements Engineering (USC) Spring 2012
CS 577a: Software Engineering (USC) Fall 2011

GRADING

RAČ 6002: Compiler Design 2 Spring 2006, Spring 2007
RAČ 0205: Compiler Design 1 Fall 2005, Fall 2006

STUDENT SUPERVISION

Master Thesis: Armagan Kilic (M.Sc., University of Karlsruhe, 2012)
Directed Research: John Morse (M.Sc., University of Southern California, 2009)

ENGINEERING ACTIVITIES

PROJECT PARTICIPATION

Google Inc: “Metadata-Based YouTube Video Classification”
Ericsson Nikola Tesla: “PIE — Programmable Internet Environment”

PROFESSIONAL SERVICE

PROGRAM COMMITTEE MEMBERSHIP

Artifact Evaluation, Joint Meeting of the European Software Engineering Conference and ACM 2011
SIGSOFT Symposium on the Foundations of Software Engineering

REFEREEING AND REVIEWING

Science of Computer Programming, Elsevier	2013
Computer Journal, Oxford Journals	2013
Joint Meeting of European Software Engineering Conference and ACM SIGSOFT Symposium on Foundations of Software Engineering (ESEC/FSE)	2013
IEEE/ACM International Conference on Automated Software Engineering (ASE)	2013
International Conference on Distributed Event-Based Systems (DEBS)	2013
ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE)	2013
European Conference on Software Architecture (ECSA)	2013
IEEE Transactions on Software Engineering (TSE)	2012
International Conference on Distributed Event-Based Systems (DEBS)	2012
Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)	2012
IEEE Transactions on Software Engineering (TSE)	2011
IEEE/ACM International Conference on Automated Software Engineering (ASE)	2011
Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)	2011
IEEE Transactions on Software Engineering (TSE)	2010
Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)	2010
ICSE Workshop on Quantitative Stochastic Models in the Verification and Design of Software Systems (QUOVADIS)	2010
Architecting Dependable Systems VI, Springer	2009
DSN Workshop on Architecting Dependable Systems (WADS)	2009
International Conference on Autonomic Computing (ICAC)	2009
IEEE/ACM International Conference on Automated Software Engineering (ASE)	2008

CONFERENCE ORGANIZATION

Submission Administrator, ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE)	2012
Student Volunteer, International Conference on Software Engineering (ICSE)	2009
Submission Administrator, International Conference on Autonomic Computing (ICAC)	2009
Submission Administrator, ICSE Warm-Up Workshop (ICSE WUP)	2009
Student Volunteer, International Conference on Software Engineering (ICSE)	2008
Submission Administrator, Euromicro, Special Session on Software Architectures for Pervasive Systems	2008

OTHER SERVICE

USC Department of Computer Science, PhD Student Committee	2009–12
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PROFESSIONAL ASSOCIATIONS

Association for Computing Machinery (ACM)
ACM's Special Interest Group on Software Engineering (ACM SIGSOFT)
IEEE Computer Society (IEEE CS)

TECHNICAL EXPERTISE

General Purpose Programming Languages

— Java, C, C++, C#

Web Programming Languages

— Python, PHP, JavaScript

Modeling and Markup Languages

— XML, HTML, UML, LTS, FSP

Database Technologies

— MySQL, Microsoft SQL Server, BigTable, Apache HBase

Integrated Development Environments

— Eclipse, Microsoft Visual Studio

Development Frameworks

— Event-Based Middleware, SOAP Web Services, MapReduce

Mobile Platforms

— Android, iPhone, Windows Phone

Operating Systems

— Windows, Red Hat Linux, Ubuntu Linux

REFERENCES

ACADEMIC REFERENCES

Nenad Medvidović	University of Southern California, neno@usc.edu, +1-213-740-5579
Sebastián Uchitel	University of Buenos Aires, suchitel@dc.uba.ar, +54-11-4576-3390
Leana Golubchik	University of Southern California, leana@bourbon.usc.edu, +1-213-740-4524
Yuriy Brun	University of Massachusetts, brun@cs.umass.edu, +1-609-379-2786

INDUSTRIAL REFERENCES

George Edwards	Quandary Peak Research, george@quandarypeak.com
Philo Juang	Google Inc, pjuang@google.com
Naveen Kulkarni	Infosys Limited, naveen_kulkarni@infosys.com
Daniel Popescu	Google Inc, popescudm@gmail.com