



CV Wizard preview

Hana Chockler
IBM Professional

Israel

Education

Qualifications Ph.D. in Computer Science
 Hebrew University, Israel
 Thesis Title: Coverage metrics for model checking, 2003

M.Sc. in Computer Science
 Tel-Aviv University, Israel
 Thesis Title: Formulae with 3-bit majority gates, 1996

B.Sc. in Computer Science and Mathematics
 Hebrew University, Israel

Language skills

| | |
|---------|--------|
| English | Fluent |
| Hebrew | Fluent |
| Russian | Fluent |
| French | Basic |

Professional experience

Profile I hold a Ph.D. in the area of formal verification, an M.Sc. in the area of Boolean circuit complexity, and an B.Sc. in both computer science and mathematics.

In my doctoral dissertation I focused on coverage metrics for model checking. At the time I started working on this subject, it was an emerging approach to improving reliability of automated verification tools driven by the industrial demand. My research introduced a formal approach to coverage in model checking contributing a variety of coverage metrics and efficient algorithms for their computation. It is widely recognized as the one that laid a foundation for subsequent development of the field. It was picked up by several research groups in both academy and industry.

I am also interested in the theory of algorithms and computational complexity and its relation to the theoretical and practical aspects of formal verification.

My other interests are in the area of theoretical foundations of

modeling and design of systems and the connection of design to verification.

I believe that best ideas come from combining the research in several different areas. A significant part of my research is dedicated to applying ideas from other fields of research, such as AI or circuit complexity, to formal verification.

Key skills

Formal verification; model checking; coverage metrics for verification; boolean circuit complexity; computational complexity; modeling and design; review of designs; verification of protocols; reasonable knowledge of C and C++.

Key courses and training

Career history

09/2005 - to date

IBM HRL, Israel Research Staff Member

I contributed to the development of the formal verification tool for concurrent software and firmware (ExpliSAT) and participated in several pilots for protocol verification.

I am leading the new research direction, of formal modeling, design, and review. As a part of my job description, I lead pilots in design and review of design that apply new methodology and technology. I also work on education, specifically, on the new workshop on modeling and design, targeted to architects as a part of the mentoring program.

**09/2004 - 08/2005 Worcester Polytechnical Institute (WPI), United States of America
postdoctoral research associate**

I worked on the relation between temporal logics and timing diagrams.

**10/2003 - 08/2004 Northeastern University, United States of America
postdoctoral research associate**

I worked in close collaboration with the distributed computing group at MIT. I focused on formal verification of distributed systems.

**10/2003 - 08/2005 MIT, United States of America
Visitor**

I worked on verification of distributed systems, in close collaboration with the Distributed Systems group at MIT.

I also collaborated with the Software Design group at MIT, working on applying coverage metrics to Alloy programs.

**10/1999 - 09/2003 Hebrew University, Israel
Ph.D. student; instructor.**

I received rector excellency scholarship for doctorate students, for three years.

In addition to my Ph.D. studies, I worked as an instructor in several courses, such as computational complexity, algorithms, formal verification, and automata on infinite words. In all courses I received excellent student evaluations.

I also supervised an undergraduate level student project that implemented a randomized formal verification algorithm I had been developing.

**04/1996 - 08/1999 LIAM Software Systems LTD., Israel
Technical Support Manager and Senior Consultant**

I consulted several major Israeli companies and banks and was involved in the design of several large-scale projects, such as the reorganization of software in Bezeq telephone company, as well as several projects in Israeli Defense Force.

I managed the technical support of middleware tools provided by the LIAM company.

I instructed a variety of courses of different length targeted to a diverse audience ranging from software engineers to top management level.

04/1994 - 03/1996 Amdocs, Israel**Team leader**

Team leader in the first project for telecommunications software written in C with Oracle database.

Other relevant information

Publications Hana Chockler, Ofer Strichman: Easier and More Informative Vacuity Checks, ACM IEEE, in: Proceedings of MEMOCODE, 2007

Hana Chockler, Benny Godlin, Eitan Farchi, Sergey Novikov: Cross-Entropy Based Testing, IEEE, in: Proceedings of FMCAD, 2007

Hana Chockler, Joseph Y. Halpern, Orna Kupferman: What Causes a System to Satisfy a Specification?, ACM, in: ACM TOCL journal (to appear), 2007

Hana Chockler, Orna Kupferman, Moshe Y. Vardi: Coverage metrics for formal verification, Springer Verlag, in: STTT journal, 2006

Hana Chockler, Orna Kupferman, Moshe Y. Vardi: Coverage metrics for temporal logic model checking, Springer Verlag, in: Formal Methods in System Design, 2006

Paul C. Attie, Hana Chockler: Automatic Verification of Fault-Tolerant Register Emulations, Springer Verlag, in: Electronic Notes on Theoretical Computer Science, 2006

Paul C. Attie, David H. Lorenz, Aleksandra Portnova, Hana Chockler: Behavioral Compatibility Without State Explosion: Design and Verification of a Comp.-Based Elev. ..., Springer Verlag, in: Proceedings of CBSE, 2006

Paul C. Attie, Hana Chockler: Efficiently Verifiable Conditions for Deadlock-Freedom of Large Concurrent Programs, Springer Verlag, in: Proceedings of VMCAI, 2005

Hana Chockler, Kathi Fisler: Temporal Modalities for Concisely Capturing Timing Diagrams, Springer Verlag, in: Proceedings of CHARME, 2005

Hana Chockler, Joseph Y. Halpern: Responsibility and blame: a

structural-model approach, Online, in: Journal of Artificial Intelligence Research (JAIR), 2004

Hana Chockler, Orna Kupferman: w-Regular languages are testable with a constant number of queries, Elsevier, in: Journal of Theoretical Computer Science, 2004

Hana Chockler, Dan Gutfreund: A lower bound for testing juntas, Elsevier, in: Information Processing Letters (IPL), 2004

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Hana Chockler, Orna Kupferman, Moshe Y. Vardi: Coverage Metrics for Formal Verification, Springer Verlag, in: Proceedings of CHARME, 2003

Hana Chockler, Orna Kupferman: omega-Regular Languages Are Testable with a Constant Number of Queries, Springer Verlag, in: Proceedings of RANDOM, 2002

Hana Chockler, Orna Kupferman: Coverage of Implementations by Simulating Specifications, Kluwer, in: Proceedings of IFIP TCS, 2002

Hana Chockler, Uri Zwick: Which formulae shrink under random restrictions, ACM, in: Proceedings of SODA, 2001

Hana Chockler, Uri Zwick: Which bases admit non-trivial shrinkage of formulae?, Springer Verlag, in: Computational Complexity, 2001

Hana Chockler, Orna Kupferman, Moshe Y. Vardi: Coverage Metrics for Temporal Logic Model Checking, Springer Verlag, in: Proceedings of TACAS, 2001

Hana Chockler, Orna Kupferman, Robert P. Kurshan, Moshe Y. Vardi: A Practical Approach to Coverage in Model Checking, Springer Verlag, in: Proceedings of CAV, 2001

Organizations Committee of HVC 2008
Conference chair

Program Committee of VMCAI 2006
committee member

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