

# Curriculum Vitae

Bow-Yaw Wang

Business Address:  
Institute of Information Science  
Academia Sinica  
128 Sec 2 Academia Rd  
Nankang, Taipei, 115  
Taiwan  
tel: +886-2-2788-3799x1717

Home Address:  
5F 92 Sec 1 Jhongyang Rd  
Tucheng City, Taipei County, 236  
Taiwan  
bywang@iis.sinica.edu.tw  
<http://www.iis.sinica.edu.tw/~bywang>

## Experience

Invited Professor, INRIA, 2009-2011.  
Invited Associate Professor, Tsinghua University, 2009-2010.  
Associate Research Fellow at Academia Sinica, since 2008.  
Adjoint Associate Professor at National Taiwan University, since 2009.  
Assistant Research Fellow at Academia Sinica, 2003-2007.  
Adjoint Assistant Professor at National Taiwan University, since 2004.  
Senior Software Engineer at Verplex Systems, 2001-2003.  
Summer internship at Intel Corp (with Dr. Ching-Tsun Chou), 1999.  
Summer internship at Lucent Technology (with Dr. Gerard Holzmann and Dr. Margaret Smith), 1998.  
Summer internship at SRI International (with Dr. José Meseguer), 1997.  
Research assistant at Sinica Academia (with Dr. Tyng-Ruey Chuang), 1994.

## Research

model checking, formal verification, logic in computer science.

## Degrees

Ph.D. in Computer Science, University of Pennsylvania, 1995-2001.  
Dissertation: Hierarchical Reduction and Refinement Checking for Asynchronous Processes  
Advisor: Dr. Rajeev Alur  
M.S. in Electrical Engineering, National Taiwan University, 1992-94  
B.S. in Mathematics, National Taiwan University, 1988-92

## Patent

Kuang-Chien Chen and Bow-Yaw Wang. Integrated Proof Flow System and Method. Cadence Design Systems, Inc. US Patent 7124383. 17 October 2006.  
Bow-Yaw Wang. Method and Apparatus for Induction Proof. Cadence Design Systems, Inc. US Patent 7340702. 4 March 2008.

## Publications

### Papers at Refereed Conferences

- Yungbum Jung, Wonchan Lee, Bow-Yaw Wang, and Kwangkeun Yi. *Predicate Generation for Learning-Based Quantifier-Free Loop Invariant Inference*. 17th International Conference on Tools and Algorithms for the Construction and Analysis of Systems. Volume 6605 of LNCS, pp 205–219. Saarbruecken, Germany. March, 2011.
- Soonho Kong, Yungbum Jung, Cristina David, Bow-Yaw Wang, and Kwangkeun Yi. *Automatically Inferring Quantified Loop Invariants by Algorithmic Learning from Simple Templates*. 8th Asian Symposium on Programming Languages and Systems. Volume 6461 of LNCS, pp 328–343. Shanghai, China. November, 2010.
- Yu-Fang Chen, Edmund M. Clarke, Azadeh Farzan, Fei He, Ming-Hsien Tsai, Yih-Kuen Tsay, Bow-Yaw Wang, and Lei Zhu. *Comparing Learning Algorithms in Automated Assume-Guarantee Reasoning*. 4th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation. Volume 6415 of LNCS, pp 643–657. Crete, Greece. October, 2010.
- Yu-Fang Chen, Edmund M. Clarke, Azadeh Farzan, Ming-Hsien Tsai, Yih-Kuen Tsay, and Bow-Yaw Wang. *Automated Assume-Guarantee Reasoning through Implicit Learning*. 22nd International Conference on Computer Aided Verification. Volume 6174 of LNCS, pp 511–528. Edinburgh, UK. July, 2010.
- Min Zhou, Fei He, Bow-Yaw Wang, and Ming Gu. *On Array Theory of Bounded Elements*. 22nd International Conference on Computer Aided Verification. Volume 6174 of LNCS, pp 570–584. Edinburgh, UK. July, 2010.
- Yungbum Jung, Soonho Kong, Bow-Yaw Wang, and Kwangkeun Yi. *Deriving Invariants by Algorithmic Learning, Decision Procedures, and Predicate Abstraction*. 11th International Conference on Verification, Model Checking and Abstract Interpretation. Volume 5944 of LNCS, pp 180–196. Madrid, Spain. January, 2010.
- Yu-Fang Chen, Azadeh Farzan, Edmund M. Clarke, Yih-Kuen Tsay, and Bow-Yaw Wang. *Learning Minimal Separating DFA's for Compositional Verification*. 15th International Conference on Tools and Algorithms for the Construction and Analysis of Systems. Volume 5505 of LNCS, pp 31–45. York, UK. March, 2009.
- Yih-Kuen Tsay and Bow-Yaw Wang. *Automated compositional reasoning of intuitionistically closed regular properties*. 13th International Conference on Implementation and Application of Automata. Volume 5148 of LNCS, pp 36–45. San Francisco, USA. July, 2008.
- Azadeh Farzan, Yu-Fang Chen, Edmund M. Clarke, Yih-Kuen Tsay, and Bow-Yaw Wang. *Extending automated compositional verification to the full class of omega-regular languages*. 14th International Conference on Tools and Algorithms for the Construction and Analysis of Systems. Volume 4963 of LNCS, pp 2–17. Budapest, Hungary. April, 2008.
- Geng-Dian Huang and Bow-Yaw Wang. *Complete SAT-based Model Checking for Context-Free Processes*. 5th International Symposium on Automated Technology for Verification and Analysis. In volume 4762 of LNCS, pp 51–65. Tokyo, Japan. October, 2007.
- Bow-Yaw Wang. *Automatic Derivation of Compositional Rules in Automated Compositional Reasoning*. 18th International Conference on Concurrency Theory. In volume 4703 of LNCS, pp 303–316. Lisbon, Portugal. September, 2007.
- Ming-Hsien Tsai and Bow-Yaw Wang. *Formalization of CTL\* in the Calculus of Inductive Constructions*. 11th Annual Asian Computing Science Conference. In volume 4435 of LNCS, pp 317–331. Tokyo, Japan. December, 2006.
- Ming-Hsien Tsai and Bow-Yaw Wang. *Modular Formalization of Reactive Modules in Coq*. 11th Annual Asian Computing Science Conference. In volume 4435 of LNCS, pp 105–119. Tokyo, Japan. December, 2006.
- Bow-Yaw Wang. *On the Satisfiability of Modular Arithmetic Formulae*. 4th Automated Technology for Verification and Analysis. In volume 4218 of LNCS, pp 186–199. Beijing, China. October 2006.
- Bow-Yaw Wang. *Modeling and Analyzing Applications with Domain-Specific Languages by Reflective Rewriting: a Case Study*. 21st ACM Symposium on Applied Computing. Dijon, France. April, 2006.
- Bow-Yaw Wang. *Automatic Verification of a Model Checker by Reflection*. Eighth International Symposium on Practical Aspects of Declarative Languages. In volume 3819 of LNCS, pp 45–59. Charleston, South Carolina, USA. January, 2006.
- Bow-Yaw Wang. *Proving  $\forall\mu$ -Calculus Properties with SAT-Based Model Checking*. 25th IFIP WG 6.1 International Conference on Formal Techniques for Networked and Distributed Systems. In volume 3731 of LNCS, pp 113–127. Taipei, Taiwan. October, 2005.
- Bow-Yaw Wang. *Specification of an Infinite-State Local Model Checker in Rewriting Logic*. The Seventeenth International Conference on Software Engineering and Knowledge Engineering. Taipei, Taiwan. July, 2005.
- Fang Yu and Bow-Yaw Wang. *Toward Unbounded Model Checking for Region Automata*. 2nd International Symposium on Automated Technology for Verification and Analysis. In volume 3299 of LNCS, pp 20–33. Taipei, Taiwan, November 2004.
- Fang Yu, Bow-Yaw Wang, and Yao-Wen Huang. *Bounded Model Checking for Region Automata*. Joint International Conferences on Formal Modelling and Analysis of Timed Systems and Formal Techniques in Real-Time and Fault-Tolerant Systems. In volume 3253 of LNCS, pp 246–262. Grenoble, France. September 2004.
- Bow-Yaw Wang. *Mu-Calculus Model Checking in Maude*. 5th International Workshop on Rewriting Logic and Its Applications. Barcelona, Spain. March, 2004. In volume 117 of ENTCS, pp 135–152.

- Rajeev Alur and Bow-Yaw Wang. *Verifying Network Protocol Implementations by Symbolic Refinement Checking*. *Computer Aided Verification*. Paris, France. July, 2001.
- Rajeev Alur, Grosu Radu and Bow-Yaw Wang. *Automated Refinement Checking for Asynchronous Processes*. Formal Methods in Computer Aided Design. In volume 1954 of LNCS, pp 55–72. Austin, Texas. November, 2000.
- Bow-Yaw Wang, José Meseguer, and Carl A. Gunter. *Specification and formal verification of a PLAN algorithm in Maude*. Proceedings of the 2000 ICDCS workshop on Distributed System Validation and Verification. IEEE Computer Society. April 2000.
- Rajeev Alur and Bow-Yaw Wang. *“Next” Heuristic for On-the-fly Model Checking*. Concurrency Theory, Tenth International Conference. In volume 1664 of LNCS, pp 98–113. September, 1999.

### Papers in Refereed Journals

- Geng-Dian Huang, Bow-Yaw Wang: Complete SAT-Based Model Checking for Context-Free Processes. *International Journal of Foundations of Computer Science*, 21(2): 115-134, 2010.
- Yih-Kuen Tsay, Bow-Yaw Wang: Automated Compositional Reasoning of Intuitionistically Closed Regular Properties. *International Journal of Foundations of Computer Science*, 20(4): 747-762 (2009).
- Fang Yu and Bow-Yaw Wang. Sat-based Model Checking for Region Automata. *International Journal of Foundations of Computer Science*, 17(4): 775-796, 2006.
- F. Wang, K. Schmidt, F. Yu, G.D. Huang, and B.-Y. Wang. BDD-Based Safety-Analysis of Concurrent Software with Pointer Data Structures Using Graph Automorphism Symmetry Reduction. *IEEE Transactions on Software Engineering*, 30(6): 403–417, 2004.
- Hsu-Chun Yen, Bow-Yaw Wang, and Ming-Sheng Yang. Deciding a Class of Path Formulas for Conflict-Free Petri Nets *Theory of Computing Systems*, 30(5):475-494, 1997.
- Hsu-Chun Yen, Bow-Yaw Wang, and Ming-Sheng Yang. Some Complexity Results for Rings of Petri Nets. *International Journal of Foundations of Computer Science*. Vol. 5 No. 3&4: 281–292, 1994.

### Editorial Work

- Jing Liu, Doron Peled, Bow-Yaw Wang, Farn Wang: 4th IEEE International Symposium on Theoretical Aspects of Software Engineering. Taipei, Taiwan. August, 2010. IEEE Computer Society 2010.