

# Curriculum Vitae

Tuba Yavuz

## **Business Address:**

Electrical and Computer  
Engineering Department  
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## **Research Interests**

Modeling, verification, analysis, and synthesis for improved system security and reliability.

## **Degrees**

Ph.D., Summer 2004, Computer Science, University of California, Santa Barbara, USA.  
Thesis: Specification and Automated Verification of Concurrent Software Systems.  
Advisor: Tevfik Bultan

M.S., August 1999, Computer Science, Bilkent University, Ankara, Turkey.  
Thesis: Indexing Motion for Video Databases.  
Advisor: Ozgur Ulusoy

B.S., June 1997, Computer Science, Bilkent University, Ankara, Turkey.

## **Work Experience**

**Assistant Professor**, Electrical and Computer Engineering Department, University of Florida,  
Summer 2014 - current.

**Research Scientist** (with Graduate Faculty status), University of Florida, Fall 2004 - Spring 2014.

**Research Assistant**, University of California, Santa Barbara, Fall 1999 - Fall 2004.

**Research Assistant**, Bilkent University, Ankara, Turkey, Fall 1997 - Fall 1999.

# Publications

## Journal Articles

1. KyungHee Kim, Tuba Yavuz-Kahveci, Beverly A. Sanders: **JRF-E: using model checking to give advice on eliminating memory model-related bugs**. Automated Software Engineering 19(4): 491-530 (2012).
2. Tuba Yavuz-Kahveci, Tevfik Bultan: **Action Language verifier: an infinite-state model checker for reactive software specifications**. Formal Methods in System Design 35(3): 325-367 (2009).
3. Tuba Yavuz-Kahveci and Tevfik Bultan: **A Symbolic Manipulator for Automated Verification of Reactive Systems with Heterogeneous Data Types**. International Journal on Software Tools for Technology Transfer (STTT), vol. 5, no. 1, pp. 15-33, November 2003.

## Refereed Conference Papers

4. Farhaan Fowze and Tuba Yavuz. **Specification, Verification, and Synthesis using Extended State Machines with Callbacks**. Proceedings of the 14th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE 2016), Kanpur, India, November 18-20, 2016
5. Tuba Yavuz. **Combining Predicate Abstraction with Fixpoint Approximations**. Proceedings of the 14th International Conference on Software Engineering and Formal Methods (SEFM 2016), Vienna, Austria, 4-8 July 2016.
6. Chelsea Metcalf, Farhaan Fowze, Tuba Yavuz, Jose Fortes. **Extracting Configuration Parameter Interactions using Static Analysis**. Proceedings of the 24th IEEE International Conference on Program Comprehension (ICPC 2016), Austin, Texas, May 2016.
7. Huafeng Jin, Tuba Yavuz-Kahveci, Beverly A. Sanders: **Java Memory Model-Aware Model Checking**. Proceedings of the 18th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2012): 220-236.
8. KyungHee Kim, Tuba Yavuz-Kahveci, Beverly A. Sanders: **JRF-E: using model checking to give advice on eliminating memory model-related bugs**. Proceedings of the 25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010): 215-224.
9. KyungHee Kim, Tuba Yavuz-Kahveci, Beverly A. Sanders: **Precise Data Race Detection in a Relaxed Memory Model Using Heuristic-Based Model Checking**. Proceedings of the 24th IEEE/ACM International Conference on Automated Software Engineering (ASE 2009): 495-499.
10. Tuba Yavuz-Kahveci and Tevfik Bultan. **Verification of Parameterized Hierarchical State Machines Using Action Language Verifier**. Proceedings of the Third ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2005).

11. Tuba Yavuz-Kahveci, Constantinos Bartzis, and Tevfik Bultan. **Action Language Verifier, Extended**. Proceedings of the 17th International Conference on Computer Aided Verification (CAV 2005).
12. Tuba Yavuz-Kahveci and Tevfik Bultan. **Automated Verification of Concurrent Linked Lists with Counters**. Proceedings of the 9th International Static Analysis Symposium (SAS 2002). M. V. Hermenegildo, G. Puebla eds., LNCS 2477, pp. 69-84, Springer, Madrid, Spain, September 2002.
13. Tuba Yavuz-Kahveci and Tevfik Bultan. **Specification, Verification, and Synthesis of Concurrency Control Components**. Proceedings of the 2002 ACM/SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2002), pp. 169-179, Via di Ripette, Rome, Italy, July 22-24, 2002.
14. Tuba Yavuz-Kahveci and Tevfik Bultan. **Heuristics for Efficient Manipulation of Composite Constraints**. Proceedings of the 4th International Workshop on Frontiers of Combining Systems (FroCoS 2002), Alessandro Armando, ed., LNAI 2309, pp. 57-71, Springer, Santa Margherita Ligure, Italy, April 8-10, 2002.
15. Tuba Yavuz-Kahveci, Murat Tuncer, and Tevfik Bultan. **A Library for Composite Symbolic Representations**. Proceedings of the 7th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2001), Tiziana Margaria and Wang Yi, eds., LNCS 2031, pp. 52-66, Springer, Genova, Italy, April 2001.
16. Tevfik Bultan and Tuba Yavuz-Kahveci. **Action Language Verifier**. Proceedings of the 16th IEEE International Conference on Automated Software Engineering (ASE 2001), pp. 382-386, Coronado Island, California, November 2001.
17. Tuba Yavuz-Kahveci, Tamer Kahveci, and Ambuj Singh. **Buffering of Multimedia Index Structures**. The International Society for Optical Engineering (SPIE 2000) - Internet Multimedia Management Systems, Boston, 2000.
18. Tuba Yavuz and H. Altay Guvenir. **An Application of K-Nearest Neighbor on Feature Projections Method to Text Categorization**. Proceedings of the 13th International Symposium on Computer and Information Sciences (ISCIS 98), Antalya, Turkey, October 26 - 28, 1998.
19. A. Pinar Saygin and Tuba Yavuz. **Query Processing in Context Oriented Retrieval of Information**. Proceedings of the 4th International Conference on Computer Science and Informatics (CS&I'98), Research Triangle Park, NC., U.S.A., October 23-28, 1998.

## Awards and Nominations

College of Engineering Undergraduate Teacher of the Year Award for 2013-2014 (University of Florida).

Nominated for the 2nd Annual E4: Gator Engineer Lecture of the Year Award in 2013.

National Science Foundation Educator's Grant for the ACM/SIGSOFT Foundations of Software Engineering Conference (2004/FSE-12), Newport Beach, CA, USA, November 1-5, 2004.

Graduate Division Travel Grant awarded by University of California, Santa Barbara, 2002.

President's Work Study Research Grant, 2000-2003.

ACM SIGSOFT CAPS Grant for the 2002 ACM/SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2002), Via di Ripette, Rome, Italy, July 22-24, 2002.

Microsoft Grant for the 2002 ACM/SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2002), Via di Ripette, Rome, Italy, July 22-24, 2002.

## Presentations

*Specification, Verification, and Synthesis using Extended State Machines with Callbacks.* Presented in the 14th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE 2016), Kanpur, India, November, 2016

*Combining Predicate Abstraction with Fixpoint Approximations* Presented in the 14th International Conference on Software Engineering and Formal Methods (SEFM 2016), Vienna, Austria, July 2016.

*Analog Mixed Signal Verification.* Gator Day @ Texas Instruments, Dallas, Texas, June 2015.

*Specification, Verification, and Synthesis of Concurrency Control Components.* Presented in the 2002 ACM/SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2002), Via di Ripette, Rome, Italy, July 22-24, 2002.

*Heuristics for Efficient Manipulation of Composite Constraints.* Presented in the 4th International Workshop on Frontiers of Combining Systems (FroCoS 2002), Santa Margherita Ligure, Italy, April 8-10, 2002.

*A Library for Composite Symbolic Representations.* Presented in the 7th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2001), Genova, Italy, April 2001.

*Action Language Verifier.* Presented a poster in the 16th IEEE International Conference on Automated Software Engineering (ASE 2001), Coronado Island, California, November 2001.

## Graduate Student Supervision Experience

- Ph.D. Student Co-advised: Huafeng Jin, Thesis: Java Memory-Model Aware Model Checking, University of Florida 2011.
- Served as Ph.D. committee member at the University of Florida:
  - Xiao Li. Mapping Reuse for Meta-Querier Customization, 2011.
  - KyungHee Kim. Java RaceFinder: Precise Data Race Detector in a Relaxed Memory Model, 2010.
  - Subramanian Arumugam. Efficient Algorithms for Spatiotemporal Data Management, 2008.
  - Oguzhan Topsakal. Semantic Integration Through Application Analysis, 2007.

## Undergraduate Student Supervision Experience

- Juan D. Jimenez. Mentor for the University Scholars Program. Project Title: Dynamic Analysis of Cloud Software. Fall 2015 - Spring 2016.
- Christopher Waugh. Undergraduate Research. Finding Performance Related Test-cases using iTree. Fall 2014 - Spring 2015.
- Rafael Moas. Undergraduate Research. Incorporating Performance Metrics to Identification of Parameter Interaction. Fall 2014 - Spring 2015.
- Chelsea Metcalf. Mentor for the University Scholars Program. Project Title: Finding Configuration Parameters that Impact Performance. Fall 2014 - Spring 2015.
- Peter Saweries. Summa Cum Laude Honors Thesis. Thesis Title: Finding Relations Between Design Patterns and Object Oriented Metrics, 2006.

## Teaching Experience

**Instructor**, University of Florida, Fall 2004-current. Courses taught:

(Graduate/Undergraduate level) Special Topics Course on Advanced Systems Programming

(Graduate/Undergraduate level) Special Topics Course on Automated HW/SW Verification

(Graduate level) Software Engineering

(Graduate level) Seminar Course on Data Race Detection Tools

(Undergraduate level) Operating Systems

(Undergraduate level) Data Structures and Algorithms

(Undergraduate level) C++ Programming

(Undergraduate level) Introduction to Programming using Java

(Undergraduate level) Software Engineering

(Undergraduate level) Senior Design Project

## Industry Experience

**Summer internship**, Texas Instruments, Santa Barbara, Summer 2001. Participated in the enhancement of the TI DSP Algorithm Standard under the supervision of Murat Karaorman.

## Professional Activities

**PC Member**. 15th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE) 2017, Vienna, Austria.

**Session chair**. 14th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE) 2016, India, Kanpur.

**The Kernel Hacking Workshop, Empowering Gator Engineers.** April 2015, University of Florida.

**The Kernel Hacking Workshop, Empowering Female Engineers.** March 2015, University of Florida.

**Judge for the Poster Session:** Grace Hopper Celebration of Women in Computing 2014 and The Graduate Student Research Day at the University of Florida.

**Teaching Assistant Coordinator, CISE Department, UF (2004 - 2011):** Each semester assigned graduate students to teaching assistant positions based on instructor and student preferences.

**Program Committee Member** for International Conference on Software and Data Technologies (ICSOFT 2007 - 2011).

**Reviewer** for ACM Transactions on Design Automation of Electronic Systems, Automated Software Engineering Journal, Journal of Software and Systems Modeling, IEEE Transactions on Software Engineering, International Journal on Software Tools for Technology Transfer, International Conference on Automated Software Engineering, and International Symposium on Automated Technology for Verification and Analysis.

## References

Available upon request.