

# Krasimira Kapitanova

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Department of Computer Science

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## EDUCATION

2006 – 2012 **Ph.D. in Computer Science**, University of Virginia  
(expected) Department of Computer Science, Charlottesville, VA

Adviser: Sang H. Son

### DISSERTATION

Topic: *Robust Real-Time Event Services in Wireless Sensor Networks*

Description: My research focuses on wireless sensor networks, in particular using formal approaches for event description and detection. I am also interested in how testing and machine learning techniques could be used to improve the reliability of sensor network applications.

2008 **Master of Computer Science**, University of Virginia,  
Department of Computer Science, Charlottesville, VA

2002-2006 **B.E. in Computer Systems and Technologies**, Technical University Sofia,  
Plovdiv, Bulgaria

## TEACHING EXPERIENCE

2007-2011 Teaching Assistant, CS1110, CS1111, CS1112: *Introduction to Programming*,  
University of Virginia

2010 Teaching Assistant, CS4750: *Database Systems*, University of Virginia

2007 Teaching Assistant, CS2150: *Program and Data Representation*, University of Virginia

2006 Teaching Assistant, CS3330: *Computer Architecture*, University of Virginia

## INDUSTRY EXPERIENCE

2011 **Internship, Google Inc.**, Mountain View, CA  
Software Engineering Intern, MapReduce Team

2010 **Internship, Google Inc.**, Mountain View, CA  
Software Engineering Intern, Google Chrome OS Team

## PUBLICATIONS

### REFEREED PAPERS

1. *RDDS: A Real-Time Data Distribution Service for Cyber Physical Systems*  
Woochul Kang, Krasimira Kapitanova, Sang H. Son, to appear in **IEEE Transactions on Industrial Informatics** 2012.
2. *A Token-Based Admission Control and Request Scheduling in Lane Reservation Systems*  
Kai Liu, Sang H. Son, Victor C. S. Lee, and Krasimira Kapitanova, **International IEEE Annual Conference on Intelligent Transportation Systems (ITSC '11)**, Washington, DC, USA, 2011.
3. *Repair Assessment of Sensor Node Failures for Activity Detection*  
Krasimira Kapitanova, Enamul Hoque, Jungyuan Li, Daniele Alessandrelli, John Stankovic, Sang H. Son, and Kamin Whitehouse. **International Workshop on Networks of Cooperating Objects (CONET '11)**, Chicago, IL, USA, 2011.
4. *Applying Formal Methods to Modeling and Analysis of Real-Time Data Streams*  
Krasimira Kapitanova, Yuan Wei, Woochul Kang, and Sang H. Son. **Journal of Computing Science and Engineering**, vol.5, no. 1, pp. 85-110, 2011.
5. *Using Fuzzy Logic for Robust Event Detection in Wireless Sensor Networks*  
Krasimira Kapitanova, Sang H. Son, and Kyoung-Don Kang. **Ad Hoc Networks Journal**, In Press, 2011.
6. *Modeling and Analyzing Real-Time Data Streams*  
Krasimira Kapitanova, Sang H. Son, Woochul Kang, and Won-Tae Kim, **International Symposium on Object/Component/Service-oriented Real-Time Distributed Computing (ISORC '11)**, Newport Beach, CA, USA 2011.
7. *Event Detection in Wireless Sensor Networks - Can Fuzzy Values be Accurate?*  
Krasimira Kapitanova and Sang H. Son. **International ICST Conference on Ad Hoc Networks (AdHocnets '10)**, Victoria, BC, Canada, 2010.
8. *Robust Data and Event Services in Real-Time Sensor Network Systems*  
Krasimira Kapitanova, Sang H. Son, and Seog Park, **International Workshop on Real-Time Networks (RTN '10)**, Brussels, Belgium, 2010.
9. *Run Time Assurance of Application-Level Requirements in Wireless Sensor Networks*  
Yafeng Wu, Krasimira Kapitanova, Jingyuan Li, John Stankovic, Sang Son, and Kamin Whitehouse, **International Conference on Information Processing in Sensor Networks (IPSN '10)**, Stockholm, Sweden, 2010.
10. *Event Detection in Wireless Sensor Networks*  
Krasimira Kapitanova, Sang H. Son, Work in Progress at **IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '10)**, Stockholm, Sweden. 2010
11. *The Price of Security in Wireless Sensor Networks*  
Jongdeog Lee, Krasimira Kapitanova, and Sang H. Son, **Computer Networks**, volume 54, issue 17, pp. 2967-2978, 2010.

12. *MEDAL - A compact Event Description and Analysis Language for Wireless Sensor Networks*  
Krasimira Kapitanova and Sang H. Son, **International Conference on Networked Sensing Systems (INSS '09)**, Pittsburgh, PA, USA 2009.

#### **BOOK CHAPTERS**

1. *Machine Learning Basics*, in *Intelligent Sensor Networks: Across Sensing, Signal Processing, and Machine Learning*, Fei Hu and Qi Hao (ed.), Taylor & Francis LLC, CRC Press 2012 [Forthcoming]

#### **HONORS**

- 2011-2012 **Ballard Fellowship**  
University of Virginia, School of Engineering and Applied Science  
Offered to students who have demonstrated academic excellence and leadership qualities. Awarded to 3 of approximately 600 graduate engineering students.
- 2009-2010 **Graduate Education Award**, University of Virginia, Department of Computer Science. Voted on by the faculty, awarded to 1 of approximately 100 graduate students.
- 2009-2010 **Graduate Service Award**, University of Virginia, Department of Computer Science. Voted on by the faculty, awarded to 2 of approximately 100 graduate students.
- 2007-2009 **CRA-W Grad Cohort Workshop**  
Attendance scholarship and speaker invitation (2009).
- 2008 **Google Workshop for Women Engineers**, Attendance scholarship

#### **UNIVERSITY SERVICE**

- 2008–present **Association of Computing Machinery's Committee on Women in Computing (ACM-W)**, Department of Computer Science, University of Virginia  
Diversity Committee Liaison (2009 - present); Secretary (2008-2009)  
Worked on projects and helped organize events to promote, celebrate, and support women in computer science and engineering.
- 2009-present **Diversity Committee**, Department of Computer Science, University of Virginia  
Helped organize events to promote and support diversity in computer science.
- 2008-present **Graduate Engineering Student Council (GESC)**, University of Virginia  
Representative of the Computer Science Department

## REFERENCES

Sang H. Son (adviser)  
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