Mohammad Mostafizur Rahman Mozumdar

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Research & Education

University of California, Berkeley, USA	Postdoctoral Researcher in Electrical Engineering & Computer Sciences	Feb, 2010-Aug, 2012
Polytechnic University of Turin, Italy	Ph.D. in Electronics and Communications Engineering	Jan, 2010
Aachen Technical University (RWTH), Germany	M.Sc. in Computer Science	Sep, 2004
Bangladesh University of Engineering and Technology (BUET), Bangladesh	B.Sc. in Computer Science and Engineering	April, 2002

Area of Expertise

System-level design methodologies, distributed cyber-physical systems, designing low power security protocol for embedded system, models of computation, automatic code generation, meta-level language description, hardware/software co-design and optimization, applications for sensor networks, energy efficient building information and control system design, routing protocols, optimal synthesis of network protocols, enterprise level software design and developments.

Appointments

August 2017- till now: Associate professor, Electrical Engineering, California State University, Long beach
August 2012- August 2017: Assistant professor, Electrical Engineering, California State University, Long beach
February 2010 – August 2012: Postdoctoral scholar, Electrical Engineering & Computer Sciences, University of California, Berkeley, USA.
January 2007 – Dec 2009: Research Assistant, Department of Electronics, Politecnico Di Torino, Italy.
May 2008 – July 2008: Visiting researcher (Intern), Wireless Sensor Networks Lab, Berkeley, California, USA
October 2005 – December 2006: Assistant Professor, Department of Computer Science, American International University Bangladesh (AIUB), Dhaka, Bangladesh.
June 2005 – August 2005: Senior Lecturer, Department of Computer Science and Engineering, United International University, Dhaka, Bangladesh.
October 2002 – March 2005: Student Research Assistant (Intern), Laboratory for Machine Tools and Production Engineering, RWTH, Aachen, Germany.
December 2001 – August 2002: Senior Software Engineer, Bangladesh Japan Information Technology (BJIT), Dhaka, Bangladesh.

Research Publications

Book Chapters:

1) M. Mozumdar, L. Lavagno, L. Vanzago "Rapid application development in the wireless sensor network domain" in Factory Automation, ISBN 978-953-307-024-7. IN-TECH, March, 2010

Journals:
1) M. Aliasgari, G. Chan, M. Mozumdar, "IoT-1-pass-security: 1(one)-pass authenticated key agreement protocol for energy constraint IoT applications", International journal on smart sensing and intelligent systems, vol. 9, no. 2, pp. 598 – 615, June 2016
2) M. Mozumdar, M. Aliasgari, S.Venkata, S. Renduchintala, "Ensuring Authentication and Security using Zero Knowledge Protocol for Wireless Sensor Network Applications", International Journal of Computing and Digital Systems, Volume 5, Issue 3, ISSN (2210-142X), May 2016
3) Imam, J. Chi and M. Mozumdar, "Data compression and visualization for wireless sensor networks", International journal on smart sensing and intelligent systems, vol. 8, no. 4, pp. 2083 – 2115, December 2015
4) K. Sivakoti, M. Mozumdar, "Load Prediction in Smart Grid Networks" International Journal of Computing and Digital Systems, Volume 4, Issue 4, ISSN (2210-142X), Oct. 2015
5) R. Tomasi, F. Sottile, C. Pastrone, M. Mozumdar, A. Osello, L. Lavagno, L., "Leveraging BIM Interoperability for UWB-Based WSN Planning," in IEEE Sensors Journal, IEEE , vol.15, no.10, pp.5988-5996, Oct. 2015
6) Puggelli, M. Mozumdar, L. Lavagno, A. Sangiovanni-Vincentelli "Routing Aware Design of Indoor Wireless Sensor Networks Using an Interactive Tool" IEEE Systems Journal,), Vol 9, No. 3 September 2015
7) M. Mozumdar, Z. Song, L. Lavagno and A. Sangiovanni-Vincentelli, "A Model-Based approach for bridging virtual and physical sensor nodes in a hybrid simulation framework", Wireless Sensor Networks and the Internet of Things , Sensors , 2014
8) M. Mozumdar, Arun Ganesan, Alireza Ameri Daragheh, "Synthesizing Sensor Networks Backbone Architecture For Smart Buildings", IEEE Sensors Journal, 2014
9) M. Mozumdar, L. Lavagno, L. Vanzago. "A comparison of software platforms for Wireless Sensor Networks: MANTIS, TinyOS and ZigBee". ACM Transactions on Embedded Computing System (ACM TECS), vol. 8, ISSN: 1539-9087, 2009
10) M. Mozumdar, N. Guofang, F. Gregoretti, L. Lavagno, L. Vanzago. "An efficient data aggregation algorithm for cluster-based sensor network". Journal of Networks (JNW), ISSN: 1796-2056., 2009

Articles:

1) S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Modeling, Simulation, and Automatic Code Generation Framework for Sensor Network Applications". Wireless Design & Development, ISSN: 1076-4240, Feb 2009.
2) S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Model-based design for wireless sensor networks, A modeling, simulation and automatic code generation framework". What's New in Process Technology, Process Online, May 2009.
3) S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Faster code generation for wireless sensor networks". Electronic Engineering Times (EETimes), ISSN: 0192-1541, Industrial Automation and T&M April 2009.

a. S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Entwicklungswerkzeuge für drahtlose Sensornetze". Elektronik Informationen - Elektronik Fachzeitschrift, Magazin, Digital, Technologie, Prozessor, Bit, Bauteil, Modul, Halbleiter, System: Neue Produkte/Nachrichten, June 2009. (Translated version in German magazine)

b. S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Opdracht: eenvoudig modelleren van sensornetwerken" Engineeringnet, December 2009 (Translated version in Dutch magazine)

c. S. Olivieri, M. Mozumdar, L. Lavagno, L. Vanzago (2009). "Estructura para modelado, simulación y generación automática de código para aplicaciones de redes inalámbricas de sensores" Editorial Cypsela-Electronica & Comunicaciones Magazine, 2009 (Translated version in Spanish magazine)

d. 传感器网络应用程序的建模、仿真与自动代码生成框架 (Sensor network applications for modeling, simulation and automatic code generation framework) EmbCom, 2009 http://www.embcom.net/thread-6273-1-1.html (Translated version in Chinese magazine)

Conference Publications:

1) M. Babaeian, N. Bhardwaj, B. Esquivel, M. Mozumdar, "Real Time Driver's Drowsiness Detection Using Logistic Regression Based Machine Learning Algorithm" (accepted for publication), Proceedings of IEEE Green Energy and Systems Conference, Long Beach, November 2016, USA

2) K. Ying, A. Ameri, A. Trivedi, D. Ravindra, D. Patel, M. Mozumdar," Decision Tree-based Machine Learning Algorithm for In-node Vehicle Classification", Proceedings of IEEE Green Energy and Systems Conference, Long Beach, November 2015, USA

3) S. Ahmari, A. Ameri, S. Padmanabhan, K. Parameshwaran, K. Ragheb, M. Mozumdar, "Poster Abstract: BioMeSensi: a Wearable Multi-Sensing Platform for Bio-Medical Applications", ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN),2015

4) J. Chwa, M. Mozumdar, "Improving Reliability of Aircraft Electric Power Distribution System" Proceedings of IEEE Green Energy and Systems Conference, Long Beach, November 2014, USA

5) T. Tam, M. Alfasi, M. Mozumdar ,"Securing resource constraints embedded devices using elliptic curve cryptography", Proceedings of SPIE Defense + Security Conference, Baltimore, Maryland, May 2014, USA

6) M. Mozumdar, Arun Ganesan, Alireza Ameri Daragheh, "Optimizing Router Nodes Placement for Designing Distributed Sensor Networks", International Workshop on Energy Awareness for Heterogeneous Networks, 2014, USA

7) M. Mozumdar, A. Shahbazian, N. Ton, "A Big Data Correlation Orchestrator for Internet of Things", IEEE WF-IOT 2014 Conference, Seoul, Korea, March 2014

8) P. Nuzzo, J. Finn, M. Mozumdar, A. Sangiovanni-Vincentelli, "Platform-Based Design Methodology and Modeling for Aircraft Electric Power Systems", IEEE Green Energy and Systems Conference, IGESC 2013, Long Beach, CA

9) M. Mozumdar, W. Bian, J. Perez, L. Lavagno, RSD-WSN: Remote Source-level Debugger for Rapid Application Development in Wireless Sensor Networks, SPIE Defense, Security, and Sensing Conference, Baltimore, USA, April 2013

10) M. Mozumdar, J. Finn, P. Nuzzo A. Sangiovanni-Vincentelli. "Requirement, Behavioral and Parametric Modeling of Aircraft Electric Power System Using SysML", TECHCON 2012: SRC's fourteenth premier technical conference, September, 2012

11) A. Puggelli, M. Mozumdar, L. Lavagno, L. Vanzago, A. Sangiovanni-Vincentelli "A Routing-Algorithm-Aware Design Tool for Indoor Wireless Sensor Networks", Proceedings of the IEEE International Conference on Computing, Networking and Communications, 2012

12) M. Mozumdar, A. Puggelli, A. Pinto, L. Lavagno, L. Vanzago, A. Sangiovanni-Vincentelli "A hierarchical wireless network architecture for building automation and control systems", ICNS 2011.

13) L. Pomante, A. Spinosi, M. Mozumdar, S. Olivieri, L. Lavagno "An Extended Framework for the Development of WSN Applications" at IEEE Workshop on Mobile Computing and Networking Technologies (WMCNT 10), 2010

14) L. Pomante, A. Spinosi, M. Mozumdar, S. Olivieri, L. Lavagno , "An extended framework for WSN applications" at IEEE Consumer Communications and Networking Conference (IEEE CCNC 2011), Jan 2011 (short paper)

15) M. Mozumdar, L. Lavagno, L. Vanzago, Alberto L. Sangiovanni-Vincentelli "HILAC: A framework for Hardware In the Loop simulation and multi-platform Automatic Code Generation of WSN Applications" at Symposium on Industrial Embedded Systems - SIES 2010

16) Z.Y. Song, M. Mozumdar, M. Tranchero, L. Lavagno, R. Tomasi, S. Olivieri, "Hy-Sim: Model based Hybrid Simulation framework for WSN application development", Proc. of the 3rd International ICST Conference on Simulation Tools and Techniques, 2010.

17) M. Mozumdar, F. Gregoretti, L. Lavagno, L. Vanzago, "An algorithm for selecting the cluster leader in a partially connected sensor network" The Third International Conference on Systems and Networks Communications, Sliema, Malta on October 26-31, 2008

18) M. Mozumdar, F. Gregoretti, L. Lavagno, L. Vanzago, "Porting application between wireless sensor network software platforms: TinyOS, MANTIS and ZigBee" at 13th IEEE International Conference on Emerging Technologies and Factory Automation, Hamburg, Germany, September 15-18, 2008.

19) M. Mozumdar, F. Gregoretti, L. Lavagno, L. Vanzago, S. Olivieri, "A Framework for Modeling, Simulation and Automatic Code Generation of Sensor Network Application", In Proceedings of Fifth Annual IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks (SECON 2008), San Francisco, California, USA, 2008.

20) Ahmed S.S., Haq, S.M., Md. Manirul Islam, Raich P.A., Polash S.A., M. Mozumdar: "Development of an Autonomous Vehicle with Multiple Sensor Based Perception and Navigation System" , In Proceedings of The 3rd International Conference on Autonomous Robots and Agents, Palmerston North, New Zealand, December 2006.

21) S.M. Huq, M. Mozumdar, Md. Manirul Islam, Md. Shihabul Haque, Bayzid Gani "A Telematics Application for Stolen Vehicle Recovery Using On-Device Position Fixing", HUT-ICCE 2006, In Proceedings of First International Conference on Communications and Electronics, Hanoi, Vietnam, October 10-11, 2006.

22) M. Mozumdar, K. Karuri, A. Chattopadhyay, S. Kraemer, H. Scharwachter, R. Leupers, G. Ascheid, H. Meyr : "Instruction Set Customization of Application Specific Processors for Network Processing : A Case Study", In Proceedings of ASAP 2005 IEEE 16th International Conference on Application-specific Systems, Architectures and Processors, July 2005, Greece.

23) M. A. A. Faruque, A. S. Munni, M. M. R. Mozumdar: "A comparative Study: Multidimensional Visualization", In Proceedings of the International Conference on Computer and Information Technology ICCIT 2003, Pages: 405-409, Volume: 1, December, Dhaka Bangladesh,

Invited talk:
- Development of Micro Wireless Sensor Platforms for Collecting Data of Passenger-Freight Interactions, University of Southern California, USC Price, 2015
- "Heterogeneous Modeling of Cyber-Physical Systems for Efficient Design Exploration", Politecnico di Torino, Italy, April, 2012
- "Modeling, Simulation and Automatic Code Generation for Networked Embedded Systems", General Motors, Warren, Michigan, June, 2011
- "Behavior Simulation and Functional Verification of WSN Application" in ARTIST Workshop on Tool Platforms for Embedded systems, Berlin, Germany, July, 2007
- "Development of Frameworks for Behavior Simulation and Automatic Code Generation of WSN Applications" in Wireless System Conference (Organized by MathWorks), 13-14 November, Italy, 2007