Mina Samuel Guirguis

601 University Drive, San Marcos, TX 78666

msg@txstate.edu — mina@blocmmount.com – (617) 817-4947 – http://cs.txstate.edu/~mg65

Education

Ph.D. in Computer Science, Boston University, USA	**January 2007**
M.A. in Computer Science, Boston University, USA	**January 2005**
B.Sc. in Computer Science and Automatic Control, Alexandria University, Egypt	**June 1999**

Academic Appointments

Professor, Computer Science Department, Texas State University	**9/2018 - present**
Senior Research Fellow, LBJ Institute for STEM Education and Research, Texas State	**9/2015 - 8/2018**
Associate Professor, Computer Science Department, Texas State University	**9/2012 - 8/2018**
Visiting Scholar, DHS CREATE, University of Southern California	**6/2016 - 8/2016**
Visiting Associate Professor, Electrical and Computer Engineering, UT Austin	**9/2014 - 5/2015**
Assistant Professor, Computer Science Department, Texas State	**9/2006 - 8/2012**
Research Fellow, Computer Science Department, Boston University	**5/2002 - 8/2006**
Teaching Fellow, Computer Science Department, Boston University	**1/2001 - 5/2002**

Professional Appointments

Blocmount, Corp., Founder, San Antonio, Texas, USA	**9/2022 - present**
Air Force Research Laboratory, Contractor, Rome, New York, USA	**7/2013 - 10/2013**
Air Force Research Laboratory, VFRP Fellow, Rome, New York, USA	**Summer 2012**
Fortress Technologies, Research Intern, Westford, Massachusetts, USA	**6/2005 - 6/2006**
Microsoft Corporation, Software Engineer (Intern), Redmond, Washington, USA	**5/2001 - 8/2001**
El Alamia, Sakhr Software Company, Software Engineer, Cairo, Egypt	**8/1999 - 8/2000**
Mitsubishi Electric Internet Services, Software Engineer (Intern), Birmingham, UK	**6/1998 - 7/1998**
International Computer Limited (ICL), Software Engineer (Intern), Alexandria, Egypt	**7/1997**

Research Interests

My research is broadly driven by the interplay of security, networks and stochastic control with research contributions in the areas of Cyber-Physical Systems, Communication Networks and Systems and Cloud Computing.

Selected Publications[‡]

- A. Tahsini, N. Dunstatter, M. Guirguis and C. Ahmed "DeepBLOC: A Framework for Securing CPS through Deep Reinforcement Learning on Stochastic Games". In *Proceedings of the IEEE CNS*, Avignon, France, June 2020.
- A. Anwar, G. Atia and M. Guirguis "A Game-Theoretic Framework for the Virtual Machines Migration Timing Problem". In *IEEE Transactions on Cloud Computing*, March 2019.
- A. Anwar, G. Atia and M. Guirguis "Its Time to Migrate! A Game-Theoretic Framework for Protecting a Multi-tenant Cloud against Collocation Attacks". In *Proceedings of the IEEE CLOUD*, San Francisco, CA, July 2018.
- M. Guirguis, A. Tahsini, K. Siddique, C. Novoa, J. Moore, C. Julien and N. Dunstatter "BLOC: A Game-Theoretic Approach to Orchestrate CPS against Cyber Attacks". In *Proceedings of the IEEE CNS*, Beijing , China, May 2018.
- A. Schlenker, H. Xu, M. Guirguis, C. Kiekintveld, A. Sinha, M. Tambe, S. Sonya, D. Balderas, and N. Dunstatter "Don't Bury your Head in Warnings: A Game-Theoretic Approach for Intelligent Allocation of Cyber-security Alerts". In *Proceedings of IJCAI*, Melbourne, Australia, August 2017.
- T. Penner and M. Guirguis. "Combating the Bandits in the Cloud: A Moving Target Defense Approach". In *Proceedings of IEEE/ACM CCGrid*, Madrid, Spain, May 2017.
- V. Nguyen, M. Guirguis and G. Atia. "A Unifying Approach for the Identification of Application-driven Stealthy Attacks on Mobile CPS". In *Proceedings of Allerton*, Monticello, IL, October 2014.
- Q. Gu and M. Guirguis. "Secure Mobile Cloud Computing and Security Issues". In B. Choi, K. Han and S. Song, editors, *"High Performance Cloud Auditing and Applications", Chapter 3*, Springer New York, 2014.
- M. Guirguis, R. Ogden, Z. Song, S. Thapa and Q. Gu. "Can You Help Me Run These Code Segments on Your Mobile Device?". In *Proceedings of IEEE Globecom*, Houston, Texas, December 2011.
- M. Guirguis, J. Valdez, B. Lababedi and J. Valdez. "Burn Before Reading: A Stealthy Framework for Combating Forensics Investigations". In *Proceedings of the APWG eCrime Researchers Summit*, Tacoma, WA, October 2009.
- M. Guirguis, A. Bestavros, I. Matta and Y. Zhang. "Reduction of Quality (RoQ) Attacks on Dynamic Load Balancers: Vulnerability Assessment and Design Tradeoffs". In *Proceedings of IEEE INFOCOM*, Anchorage, Alaska, May 2007.
- M. Guirguis, A. Bestavros, I. Matta and Y. Zhang. "Adversarial Exploits of End-Systems Adaptation Dynamics". *The Elsevier JPDC Journal, Volume 67, Issue 3*, March 2007.
- Y. Zhang, A. Bestavros, M. Guirguis, I. Matta and R. West. "Friendly Virtual Machines: Leveraging a Feedback-Control Model for Application Adaptation". In *Proceedings of ACM/USENIX VEE*, Chicago, IL, June 2005.
- M. Guirguis, A. Bestavros, I. Matta and Y. Zhang. "Reduction of Quality (RoQ) Attacks on Internet End-Systems". In *Proceedings of IEEE INFOCOM*, Miami, FL, March 2005.
- M. Guirguis, A. Bestavros and I. Matta. "Exploiting the Transients of Adaptation for RoQ Attacks on Internet Resources". In *Proceedings of IEEE ICNP*, Berlin, Germany, October 2004.

[‡] A complete list of publications and talks can be found at http://cs.txstate.edu/~mg65/

Selected Sponsored Research and Grants

US Department of Education ($675,945) **9/2021 - 8/2024**
Graduate Assistance in Areas of National Need - Computer and Information Sciences (Co-PI)

NSF SBIR Phase I ($255,973) **9/2022 - 8/2023**
SBIR Phase I: A Game-Theoretic Technology for Protecting ICS against Cyber-Attacks (PI)

NSF CISE REU ($359,000) **5/2018 - 4/2021**
REU Site: Research Experience for Undergraduates in Smart & Connected Communities (Co-PI)

NSF IUSE ($1,500,000) **1/2015 - 1/2020**
Texas State STEM Rising Stars (Co-PI)

NSF CNS SaTC ($89,044) **10/2018 - 9/2019**
SaTC: CORE: Small: Collaborative: CPS ACTS: Orchestrating CPS with Action Blocks (PI)

NSF CAREER ($458,000) **1/2012 - 12/2018**
CAREER: Securing Mobile Cyber-Physical Systems Against Stealthy Attacks (PI)

DHS SRT ($45,000) **3/2017 - 3/2018**
A Game-Theoretical Approach to Allocating Cybersecurity Analysts to Cyber Alerts (PI)

NSF CISE REU co-funded by the DoD ($339,000) **6/2012 - 5/2017**
REU Site: Research Experience for Undergraduates in Mobile Cyber-Physical Systems (PI)

NSF S-STEM ($600,000) **6/2012 - 6/2016**
SPARK: Increasing the Recruitment and Retention of Female Undergraduates in Engineering and Computer Science (Senior Personnel)

IEEE Foundation ($21,450) **8/2014 - 5/2015**
"Making" the World a Better Place (Co-PI)

Air Force Research Laboratory ($7,000) **9/2013 - 10/2013**
Secure Collaborative Computing in Mobile Clouds (PI)

Air Force Research Laboratory ($11,000) **9/2012 - 12/2012**
Control Theoretic Adaptive Monitoring Tools for the Android Platform (PI)

Selected Invited Talks and Seminars

- "Protecting our Cyber Infrastructure through Security Games" **1/2020 - 5/2020**
  - UT Austin (Strauss center), Campus Security and Life Safety
- "Intelligent Decision making: Securing Cyber-Physical Systems (CPS)" **9/2017 - 10/2018**
  - Texas State Ph.D. Seminar, Cyber San Antonio AirForce Meeting, Cybersecurity Industry Council
- "A Unifying Framework for Identifying Stealthy Attacks on CPS" **10/2014 - 6/2016**
  - USC, UT El Paso, ODU, UCF, TAMU, UT Austin
- "Identifying Exploits on Coordination Methods between UAVs", Air Force Research Laboratory, Rome, NY **7/2014**
- "Collaborative Computing in Mobile Clouds", Air Force Research Laboratory, Rome, NY **7/2013**
- "Securing Mobile CPS against Stealthy Attacks", NSF US/Middle East Workshop, Istanbul, Turkey **6/2012**
- "Exploiting the Transients of Adaptation for RoQ Attacks on Internet Resources", Microsoft Research **9/2004**

Selected Professional and Synergistic Activities

- NSF Panelist in various programs.
- Symposium Co-Chair, Communication and Information System Security Symposium – IEEE Globecom 2018.
- Chair, Third National Workshop for REU Research in Networking and Systems, Santa Clara, CA, January 2017.
- Local Chair, MobiCASE, Austin, TX, November 2014
- Program Co-chair on the Second International Workshop on Internet of Things, Miami, FL, October 2014.
- Editorial Board Member for the IARIA International Journal on Advances in Networks and Services
- Served/Serving on the Technical Program Committee (TPC) in many International conferences.
- Developed and delivered workshops, lectures and course modules to introduce STEM students to Computer Science.

Masters Thesis Advising*

Alireza Tahsini, BLOC: A Game Theoretic Approach to Orchestrate CPS Against Cyber Attacks **7/2019**
Noah Dunstatter, Solving Cyber Alert Allocation Markov Games with Deep Reinforcement Learning **5/2019**
Terry Penner, Bandits in the Cloud: A Moving Target Defense Against Multi-Armed Bandit Attack Policies **5/2016**

* Partial list of students for whom I served as the main advisor in the past few years.

Selected Honors and Awards

- Presidential Distinction Award for Excellence in Teaching, College of Science and Engineering, **8/2020**
- College Achievement Award for the Presidential Award for Excellence in Scholarly/Creative Activities, **8/2015**
- Recipient of the College of Science and Engineering Excellence in Scholarly Activities Award **9/2013**
- Recipient of the NSF Faculty Early Career Development (CAREER) **1/2012**
- Recipient of the Outstanding Teaching Fellow Award, Boston University **4/2002**