Marian K. Iskander

Department of Computer Science
210 South Bouquet Street, Sennott Square
University of Pittsburgh
Pittsburgh, PA 15260
e-mail: marianky@cs.pitt.edu
webpage: www.cs.pitt.edu/~marianky
cellular: 412-799-3944

EDUCATION

Starting August 2009	Ph.D Graduate Student Department of Computer Science, University of Pittsburgh, Pennsylvania, USA Third year student: **GPA 3.8/4.0**
April 2007	M.Sc. in Information Systems **GPA 4.0/4.0** Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt **Thesis Title:** "Development of an Enhanced Data Security System for Code Division Multiple Access Wireless Networks"
June 2002	B.Sc. in Information Systems Faculty of Computer and Information Sciences, Ain Shams University, Cairo, Egypt **Degree:** Outstanding, Graduated with degree of honor − ranked 2nd **GPA 3.875/4.0**

RESEARCH INTERESTS AND DIRECTIONS

My broad research interests lie at the intersection of security and distributed systems. I am mostly interested in designing secure and fault tolerant protocols for distributed systems operating under real-time, QoS, and power constraints. My research advisor is Dr. Adam J. Lee, and my co-advisor is Dr. Daniel Mossé.

My completed and ongoing research projects include:
- Designing fault-tolerant and confidentiality-preserving protocols for in-network data aggregation in wireless sensor networks, and studying the energy impact of these protocols.

- Designing approaches to enforce authorization policies and data consistency requirements in database transactions executed in the cloud. We have defined different levels of policy consistency constraints and presented enforcement approaches to guarantee different degrees of consistency.

- Accelerating deep packet inspection using GPU for intrusion detection systems.

- Designing algorithms to reduce the number of bit writes in PRAM storage to increase the durability of PRAM devices by indexing free blocks using content-based signatures.

- Designing logical topologies of hierarchical rings for fractionated spacecrafts architectures aimed to achieve high degree of fault tolerance for satellite modules and provide hierarchical levels of trust.

PUBLICATIONS

- **Marian K. Iskander**, Adam J. Lee, and Daniel Mossé, "Confidentiality-Preserving and Fault-Tolerant In-Network Aggregation for WSNs," *under review*.

- **Marian K. Iskander**, Dave W. Wilkinson, Adam J. Lee, and Panos K. Chrysanthis, "Enforcing Policy and Data Consistency of Cloud Transactions," in Proceedings of the Second International Workshop on Security and Privacy in Cloud Computing (ICDCS-SPCC), June 2011.

- **Marian K. Iskander**, Adam J. Lee, and Daniel Mossé, "Privacy and Robustness for Data Aggregation in Wireless Sensor Networks," 17th ACM Conference on Computer and Communications Security, CCS Poster Session, October 2010.

- Brian Wongchaowart, **Marian K. Iskander**, and Sangyeun Cho, "A Content-Aware Block Placement Algorithm for Reducing PRAM Storage Bit Writes," 26th IEEE Symposium on Massive Storage Systems and Technologies, May 2010.

- **Marian K. Iskander**, Nabil Hamdy, Tarek A. El Megeed, Ahmed M. Hamad, "MANAGE1: New Stream Cipher for Data Encryption in CDMA Wireless Networks", IEEE International Conference on Computer Engineering & Systems (ICCES'06), Cairo-Egypt, November 2006.

- **Marian K. Iskander**, Nabil Hamdy, Tarek A. El Megeed, Ahmed M. Hamad, "Assessing the Security of the Stream Cipher (ORYX) for CDMA Wireless Networks", Second ACM ICICIS Conference on Intelligent Computing & Information Systems, Cairo-Egypt, March 2005.

HONORS AND AWARDS

- Runner-up for the 2011 Orrin E. & Margaret M. Taulbee Award for Excellence, Department of Computer Science, University of Pittsburgh. [Recognizes teaching excellence, strong research interests, and marked interest in pursuing an academic career; only one awardee and one runner-up per year.]

- TA Mentor Award for achieving the honor of being the mentor of the teaching assistants for the academic year 2011-2012, Department of Computer Science, University of Pittsburgh [only one awardee per year].

- Best Graduate Poster Award for 2011, Department of Computer Science, University of Pittsburgh.

- NSF travel grant to attend and present at ICDCS-SPCC 2011.

- ACM travel grant to attend and present in the poster session at CCS 2010.

- Arts and Science fellowship award, University of Pittsburgh, fall 2009. [Full tuition and stipend for grad school.]

- Certificate of Excellence from Microsoft Egypt (Smart Village) for contributions in developing the "Partners/ISVs Bar Application", 2005.

- Certificate of Honor from IEEE GOLD for contributions in the organization of the Egyptian Engineering Day, August 2003.

- Certificate of Honor for the Scientific Excellence from Faculty of Computer & Information Sciences, Academic years 1999/2000 & 2000/2001, Ain Shams University, Egypt. [Ranked 1st among about 120 students.]

WORK EXPERIENCE

University of Pittsburgh, School of Science & Arts
Department of Computer Science

Graduate Research Assistant   May 2011 – present

Teaching Assistant   January 2010 – April 2011

Duties include teaching lab recitations, assisting students in their projects, and evaluating the students' performance through the whole course work.
Courses:
CS0445 (Data Structures)
CS1520 (Programming Languages for Web Applications)

Ain Shams University, Faculty of Computer &
Information Sciences, Cairo, Egypt

Teaching Assistant   September 2002 – August 2009

Duties as a teaching assistant included the planning, preparation and management of practical lab courses. Instructed and assessed students' performance in the labs and supervised several graduation projects.

Courses:
Mobile Computing, Networks Security, Advanced Software Engineering, System Analysis & Design using UML, Structured Programming, Electronics design, Simulation & Modeling, XML structures and web services, Decision making and Crisis Management, Java programming, Web programming using ASP.Net.

Lecturer: June 2006 – September 2006
Devised curriculum and lectured web development for first year students.

ADDITIONAL ACTIVITIES AND PROFESSIONAL SERVICES

- Secretary, Computer Science Graduate Student Organization, University of Pittsburgh (2011 – 12).

- President of the International Students Fellowship (ISF), University of Pittsburgh (2009 – 12).

- Member of Women in Computer Science organization (WiCS@Pitt).

- Part-time system analyst for a project entitled "Intelligent Information Discovery & Processing System (IIDPS) – Crawler Component", for HARF Information Technology, Egypt, 2009.

- Participated within a team of three developers in the development of an educational security package for the "Institute of Technology and Industrial Development, Egypt". The package included three main modules: Data Encryption/Decryption Algorithms, Key Management, and Statistical Tests Module (NIST standard), (2006 – 2008).

- Supervised the graduation project of a group of students for academic year (2007/2008). The project was "Cryptographic Instant Messenger". The project was ranked as one of the top 50 projects among all educational institutes in Egypt, and was granted the prestigious Egyptian ITEDA winning prize for year 2008.

ADDITIONAL TRAINING COURSES

- Microteaching and Macroteaching Experiences (for small and large lecture formats): Faculty and Leadership Development Project, April 2007.

- Scientific Research Methodologies: Faculty and Leadership Development Project, September 2006.

- Effective Thinking Skills: Faculty and Leadership Development Project, August 2006.

- VHDL Design and Implementation: School of Engineering, Arab Academy for Science and Technology and Maritime Transport, February 2006.