

Salah A. Aly Ahmed

Associate Professor of Computer Science

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Education

Ph.D Computer Science, Faculty of Engineering, Texas A&M University, USA, May 2008

Topics: Quantum Error-Correcting Codes, Distributed Algorithms, WSN's and Information Security

Positions

12/2014–08/2015	Associate Professor, College of Computers and Information Systems, Umm Al-Qura University, Makkah, KSA.
11/2010–08/2015	Assistant Professor, College of Computers and Information Systems, Umm Al-Qura University, Makkah, KSA.
11/2009–11/2011	Research Associate, Department of Computer and Electrical Engineering, Princeton University, Princeton, NJ, USA.
03/2008–05/2009	Research Associate, Department of Electrical and Computer Engineering, Iowa State University of Science and Technology, Ames, IA, USA.
05/2007–08/2007	Visiting Researcher and Intern, Bell-Labs & Alcatel-Lucent, Murray Hill, NJ, USA.
08/2004–02/2008	Research Assistant, Department of Computer Science, Faculty of Engineering, Texas A&M University, College Station, TX, USA.

International Patents (Sample)

- Mohamed-Slim Alouini, Ahmed Douik, Salah A. Aly, Tareq y. Al-naffouri, Robust Node Estimation and Topology Discovery For Large-Scale Networks, Work done at King Abdullah University of Science and Technology, WO2017029635-PCT, US Patent, Filed March 2015, Accepted Feb. 2017.
- Salah A. Aly and Ahmed E. Kamal, "Network Protection Strategies Against Link and Node Failures Using Network Coding", US Patent number: US-2009-0135717-A1, publication date: 05/28/2009. Applications: Network Protection and Security, Failures, Practical Network Coding. Work done at Iowa State University.
- Salah A. Aly, Zhenning Kong, and Emina Soljanin, "Fountain Codes Based Distributed Storage Algorithms for Wireless Sensor Networks", US Patent, filed October 2007, accepted 2009. Applications: data storage systems, sensor networks, distributed systems. Work done at Bell Labs and Alcatel & Lucent in NJ, USA.
- Salah A. Aly and Hamed Metwally, A Smart Prayer Carpet System for Human Detection and Activity Recognition, submitted to the patents office at Umm Al-Qura University on January 2012.

Grants & Funded Research Projects (Sample)

- Crowd-Sensing: Crowd Estimation, Management, Safety Research Project supported by HajjCore Institute in Makkah. Project PI with a total budget 618.000 RS, From May 1st 2011 to February 28th, 2013.
- HajjDoc: Hajj Documentation and Data Collection Project supported by HajjCore Institute in Makkah. Project Co-PI with a total budget 300.000 RS, From May 1st 2011 to April 30th, 2012.
- Energy-Sensing, Energy Efficiency and Data Monitoring for Wireless Sensor Networks, supported by NPSTI, KSA. Project PI with a total budget 1780.000 RS (\$500.000 US) from January 2012 . Project ID: 11-INF1702-10.
- Smart Traffic Sensing and Crowd Monitoring Management, supported by NPSTI, KSA. Project PI with a total budget 1.362.000 RS (\$350.000 US) from January 2012 . Project ID: 11-INF1707-10.

Teaching

I can teach various Computer Science courses including Introduction to Programming Java, C++, PHP, Databases, Data Structure, Design and Analysis of Algorithms, IoT and BigData, Computer Networks, Security, Operating System, Coding Theory, Quantum Computing,

- Taught Computer Networks, Security, theory of Computations courses at UQU in KSA.
- Taught Design and Analysis of Algorithms, Data Structures, and Advanced Databases at O6U and MUST in EG.
- Data Structure, Operating Systems, Programming Language, Database Systems in NJ, USA.
- Taught several programming and web solutions courses including: JAVA, C++, PHP+MySQL, Javascript, Databases, Software Engineering, System Analysis, Information Systems.

Publications (Sample)

My recent publications are available by searching my name at <http://www.arxiv.org>

- **Salah A. Aly** and Andreas Klappenecker, Constructions of Subsystem Codes over Finite Fields. *Intentional Journal of Quantum Information (IJQI)*, Volume No. 07 , Issue No. 05, Sept. 2009. Available: arXiv:0811.1570v1 [quant-ph].
- **Salah A. Aly**, Andreas Klappenecker, and Pradeep K. Sarvepalli. On Quantum and Classical BCH Codes. *IEEE Transaction Information Theory Journal*, vol. 53, no. 3, pp. 1183–1188, 2007. Available: arXiv:quant-ph/0604102v1
- **Salah A. Aly**, Distributed Data Collection and Storage Algorithms for Collaborative Learning Vision Sensor Devices with Applications to Pilgrimage, *International Journal of Sensor Networks (ISI Ranked)*, Vol. 12, No.3, PP. 137-148, October 2012.
- **Salah A. Aly**, Asymmetric Quantum BCH Codes, *Proc. 2008 IEEE International Conference on Computer Engineering & Systems (ICCES'08)*, November 25-27, 2008. arXiv:0803.0764v1 [quant-ph], **Best Paper Award**.
- **Salah A. Aly**, Zheng Kong, and Emina Soljanin, Fountain Codes Based Distributed Storage Algorithms for Wireless Sensor Networks, *Proc. 2008 IEEE/ACM Information Processing of Sensor Networks (IPSN'08)*, St. Louis, Missouri, USA, April 22-24, 2008, acceptance ratio. %23.8.

Development and Programming Skills

I have more than 10 years experience in the fields of IT, Web solutions, Databases, BigData, Computer Networks, Security.

- Experienced PHP, MySQL, jquery, Ajax, CSS, HTML5, frameworks: drupal, CodeIgnitor, Laravel, etc.
- Built a complete framework for managing publications and archiving.
- Worked in a startup IT company during 2012-2013 to develop web solutions and portals.
- Participated in several development and programming projects, including Missing and found web portal, FCI-UQU web solutions and management system for all faculty, staff, students.
- Taught several programming and web solutions courses including: JAVA, PHP+MySQL, Javascript, Databases, Software Engineering, System Analysis, Information Systems.