

Mohammad Alaggan

Ph.D. in Computer Science

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Skills

Science

Differential Privacy
Cryptographic Protocols
Machine Learning

Technology


Linux
C++ (up to C++14)
Wolfram Mathematica

Work Experience

2/2016

Postdoctoral Researcher  , Inria Lyon, France, PRIVATICS Team.
Privacy-preserving sketches for mobility analytics of Wi-Fi and Cellular data

2014–16

Assistant Professor , Computer Science Department, Helwan University, Egypt.
Teaching: Cryptography, Operating Systems, Software Engineering
Mentored Undergraduate Theses: File System, Fully-Homomorphic Encryption (FHE)
Electronic Voting, FHE-based Secure Delegation of Computation to an Untrusted Cloud,
Implementation of a Cryptographic Proof-of-Identity Protocol over Bluetooth

2009
2013

Graduate Student , University of Rennes 1, France.

3–9/2009

Research Assistant , Peerialism AB, Egypt.

2008

Software Engineer, Egyptian Armed Forces, Egypt, (Obligatory Service).
Java and MySQL on a Linux platform

9/2007–1/2008

Research Assistant , Peerialism AB, Egypt.

- Product: Java-based peer-to-peer live-video streaming
- Role: Continuous development, enhancement, and evaluation of the core protocol
- Achievements
 - Developing a high-performance discrete-event simulator from scratch with the ability to efficiently simulate network bandwidth constraints (for TCP or UDP streams) for thousands of simulated peers
 - Developing a cluster-management system to manage our distributed simulations
 - Contribution of many ideas to the protocol

Patents

2012

EP2832074 - Anne-Marie Kermarrec, Sébastien Gambs, Mohammad Alaggan, Method of Masking Data Making Up a User Profile Associated With a Node of a Network, Inria/University of Rennes 1, Europe.

Education

2013

Ph.D. in Computer Science , University of Rennes 1, France, *Trés Honorable*.

Thesis: Private peer-to-peer similarity computation in personalized collaborative platforms
Advisor: Anne-Marie Kermarrec
Co-advisor: Sébastien Gambs

2010

M.Sc. in Computer Science , University of Rennes 1, France.

Master's Program Specialty: Distributed Systems
Thesis: Privacy preservation in peer-to-peer gossiping networks in presence of a passive adversary
Advisor: Anne-Marie Kermarrec
Co-advisor: Sébastien Gambs

2007

B.Sc. in Computer Science , Helwan University, Egypt, *Top of Class with Honors. GPA 3.72/4.0.*

Thesis: Development of a massive multi-player online game with a highly-scalable peer-to-peer back-end
Advisor: Aliaa Yousef

Honors/Grants

- 2010 Bourse Ministérielle from the University of Rennes 1 for 3 years to pursue Ph.D.
- 2009 Grant from Fondation Michel Metivier to pursue masters at University of Rennes 1
- 2007 B.Sc. Graduation with Honors from Helwan University (in addition to being Top of Class)

Activities in Scientific Societies

2015

Regular Referee for IEEE Transactions on Information Forensics and Security (IEEE TIFS).

2017

Program Committee Member for the International Workshop on Big Data Analytics, Security and Privacy (BiDAS 2017).

2013

Referee for IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS).

Publications

Mohammad Alaggan, Mathieu Cunche, and Marine Minier. Non-interactive (t, n) -Incidence Counting from Differentially Private Indicator Vectors. In *Proceedings of the 2017 ACM on International Workshop on Security And Privacy Analytics, IWSPA@CODASPY 2017*, Scottsdale, AZ, USA, March 2017. ACM.

Mohammad Alaggan and Mathieu Cunche. Privacy-Preserving Wi-Fi Analytics. Under submission, 2017.

Mohammad Alaggan, Sébastien Gambs, and Anne-Marie Kermarrec. Heterogeneous Differential Privacy. *Journal of Privacy and Confidentiality*, 7(2):127–158, 2017.

Mohammad Alaggan, Mathieu Cunche, and Marine Minier. Privacy-preserving t -incidence for wifi-based mobility analytics. In *7e Atelier sur la Protection de la Vie Privée (APVP'16)*, Toulouse, France, July 2016.

Mohammad Alaggan, Sébastien Gambs, and Anne-Marie Kermarrec. Heterogeneous

Differential Privacy. In *1st workshop on the Theory and Practice of Differential Privacy, TPDP at ETAPS'15*, London, UK, April, 2015.

Mohammad Alaggan, Sébastien Gambs, Stan Matwin, and Mohammed Tuhin. Sanitization of Call Detail Records via Differentially-Private Bloom Filters. In P. Samarati, editor, *Proceedings of the 29th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec'15)*, volume 9149 of *Lecture Notes in Computer Science*, pages 1–8, Fairfax, VA, USA, July, 2015. Springer.

Mohammad Alaggan, Sébastien Gambs, and Anne-Marie Kermarrec. BLIP: Non-Interactive Differentially-Private Similarity Computation on Bloom Filters. In Andréa W. Richa and Christian Scheideler, editors, *Proceedings of the 14th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS'12)*, volume 7596 of *Lecture Notes in Computer Science*, pages 202–216, Toronto, Canada, 1–4 October 2012. Springer.

Mohammad Alaggan, Sébastien Gambs, and Anne-Marie Kermarrec. Private Similarity Computation in Distributed Systems: From Cryptography to Differential Privacy. In Antonio Fernández Anta, Giuseppe Lipari, and Matthieu Roy, editors, *Proceedings of the 15th International Conference on the Principles of Distributed Systems (OPODIS'11)*, volume 7109 of *Lecture Notes in Computer Science*, pages 357–377, Toulouse, France, 13–16 December, 2011. Springer.

Roberto Roverso, Mohammed Al-Aggan, Amgad Naiem, Andreas Dahlstrom, Sameh El-Ansary, Mohammed El-Beltagy, and Seif Haridi. MyP2PWorld: Highly Reproducible Application-level Emulation of P2P Systems. In *Workshops Proceedings of the 2nd IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASOW'08)*, pages 272–277, Venice, Italy, 20–24 October, 2008. IEEE Computer Society.