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Education

Ph.D., University of South Florida, Tampa, Florida, USA, January 2017-April 2020

- Doctoral degree candidate in Electrical Engineering, Supervisors Drs. Kaiqi Xiong and Nasir Ghani
- Courses in cyber security, computer networking and security, applied cryptography, machine learning, artificial intelligence, data mining, advanced databases, graph theory, optimization and queueing theory (GPA > 3.7 out of 4)

Masters, University of South Florida, Tampa, Florida, USA, January 2015-December 2016

- Masters degree in **Mathematics, Statistics concentration**, Supervisor Prof. Kaiqi Xiong
- Courses in mathematics, probability theory, applied statistics, data mining and advanced data science, engineering mathematics (GPA >3.5 out of 4)

Bachelors, Ecole Supérieure d'Ingénierie En Sciences Appliquées, Morocco, Sept. 2009–Aug. 2013

- Bachelors degree in **Computer Engineering**
- Courses in communications, advanced programming, data structures, algorithm theory, networks, and software engineering (GPA >17 out of 20)

Technical Skills

- **Data Science and analytics:**
 - Matlab, SPSS, Minitab, Microsoft Excel, Tableau, R/RStudio, Stata, SigmaStat, Izenda, Sisense, Sales Force Analytics Cloud.
- **Machine learning and data mining:**
 - Matlab, TensorFlow, Octave, Weka, Google Cloud Platform, R, H2O, Deeplearning4j, Scikit-learn, XGBoost, PyTorch, Torch, RapidMiner
- **Software Engineering & Programming Languages:**
 - Python, C/C++/C#, Java, Assembler, bash, Perl, Ruby, Rust, iOS/Swift
 - JEE: Struts, Spring, Hibernate, RMI, EJB.
 - .Net: VB.NET, Windows Forms, Windows Presentation Foundation, MVC2, JavaServerFaces, JavaServerPages.
 - UML
- **Front and back-end web development:**
 - Html, CSS, JavaScript, JQuery, Ajax, PHP, SVG.
- **Data Base Administration and Analysis:**
 - SAP, MySQL, MS SQL Server, MS Access
- **Research testbeds and cluster computing frameworks:** Global Environment for Networking Innovation (GENI), ExoGENI, Fed4Fire, Cloud Lab, PhantomNet, Virtual Wall, W-ilab.t, Nitos, Spark, Hadoop
- **Data processing and analysis:** Matlab, Octave, R/Rstudio, SAS/STAT, Tableau, Minitab, Stata
- **Big data ecosystems:** Hadoop®, MapReduce, Apache Spark™
- **Simulation and analysis:** MATLAB, OPNET Modeler™

Focus Areas

- **Cyberinfrastructures:** Cyber security, software defined networking (SDN), multi-domain software defined networking (multi-SDN), cloud computing, architecture and protocols, traffic engineering, emergency response system (ERS), machine learning and datamining, distributed computing, network function virtualization

- **Systems & services:** Internet of Things (IoT), E-enabled aircraft security, communication systems in smart cities, cyberphysical systems, interdependent smart grids, disaster recovery and emergency response, cloud services, smart services
- **Analysis:** Optimization, simulation, big data analytics, machine learning, graph theory, algorithms

Research & Teaching Experience

Doctoral Research Assistant, Univ. of South Florida, EE Department, Tampa, USA, Jan. 2016-Present

- Research in resilient and efficient Software-Defined Networking for Smart City communication systems
- Instructor for Cyber Security course: STEM for Scholars Program, University of South Florida, Summer 2018 and 2019
- Instructor for Python Programming course: STEM for Scholars Program, University of South Florida, Summer 2018 and 2019
- Teaching assistant for Applied Cryptography (Grad Level), University of South Florida/Florida Center for Cybersecurity, 2015-2019
- Teaching assistant for Cryptography and Coding Theory, University of South Florida, Fall 2017
- Instructor for Introductory Statistics, University of South Florida, Fall 2016
- Extensive network simulation analysis (C/C++, *OPNET ModelerTM*, *MATLAB*) and optimization modeling (*CPLEX* toolkit). Actively publishing papers in several leading venues
- Additional research in disaster recovery for interdependent power-communication grids. Focus on developing robust data network protection/restoration schemes for post-fault cascade mitigation
- Reviewer for several IEEE journals, conferences. Also teaching assistant for core junior year course in engineering analysis (over 60 students). Holding office hours, making assignments, and grading

Work Experience

- Internship from July 2010 through August 2010 (in Higher Institute of Applied Engineering), Implementation of library resources management application for IGA school (Higher Institute of Applied Engineering)
- Internship from June 2011 through October 2011 (in General Idea Technology company), Stock management application for a local storage of the Ministry of Interior
- Internship from July 2012 through September 2012 (in ACS Technology Center company), management of Acs company formations/courses using JEE technology

Journal Publications

- 1) Bitcoin Concepts, Threats, and Machine-Learning Security Solutions. In IEEE Access journal 2019
- 2) Kernel-Space Intrusion Detection Using Software-Defined Networking. In EAI Transactions journal 2018
- 3) A Review of Recent Advances and Security Challenges in Emerging E-Enabled Aircraft Systems. In IEEE Access
- 4) Applying Software-Defined Networking to Minimize the End-to-End Delay of Network Services. In ACM ACR journal 2018
- 5) Secure Software-Defined Networking Communication Systems for Smart Cities: Current Status, Challenges, and Trends. Pending review in IEEE Communications Surveys & Tutorials

Conference Publications

- 1) End-to-End Delay Minimization Approaches Using Software-Defined Networking. In ACM RACS 2017
- 2) SDN-Based Kernel Modular Countermeasure for Intrusion Detection. In SecureComm 2017
- 3) A Distributed Cloud-based Wide-Area Controller with SDN-Enabled Delay Optimization. In IEEE PES General Meeting (PESGM 2018)
- 4) SDN-ERS: A Timely Software Defined Networking Framework for Emergency Response Systems. In IEEE CPS Week, SCOPE 2018
- 5) A Customized Educational Booster for Online Students in Cybersecurity Education. In CSEDU 2019

- 6) Understanding Global Environment for Network Innovations (GENI) and Software-Defined Networking (SDN) for Computer Networking and Security Education. In ASEE Annual Conference
- 7) Facilitation of Cybersecurity Learning Through Real-World Hands-On Labs. In ASEE Annual Conference
- 8) A Preemption-Based Timely Software Defined Networking Framework for Emergency Response Traffic Delivery. In HPCC 2019
- 9) An Efficient Survivability Scheme for Mapping and Routing of Virtual Functions in Failure Scenarios. In SDS2019
- 10) LatencySmasher: A Software-Defined Networking-Based Framework for End-to-End Latency Optimization. In LCN 2019
- 11) An Efficient Multi-Objective Resiliency Scheme for Routing of Virtual Functions in Failure Scenarios. In the International Conference on Software Defined Systems (SDS) 2019
- 12) A Dynamic Threshold-Based Modular Countermeasure Framework Using Software-Defined Networks for DoS Attack Detection and Mitigation. Pending review in IEEE TPS 2019

Poster Presentations

- 1) US Ignite: Track 1: A Distributed Multi-Loop Networked System for Wide-Area Control of Large Power Grids. In Smart Cities Innovation Summit in Austin, Texas, June 13-15, 2016
- 2) SDN-ERS: A Timely Software Defined Networking Framework for Emergency Response Systems. In the 24th GENI Engineering Conference (GEC24) Tempe, Arizona - March 8-9, 2016
- 3) SDN-ERS: Building a Software Defined Networking (SDN)-Based Communication Framework for Emergency Response Systems. In GENI Network Innovators Community Event (NICE) and International Conference on Network Protocols (ICNP) November 2015 – San Francisco, CA
- 4) A Distributed Delay Minimization Approach for Networked Control Systems in Wide-Area Power Grids. In GENI Network Innovators Community Event (NICE) and CoNEXT on November 2016 – Irvine, CA
- 5) A Distributed Delay Minimization Approach for Networked Control Systems in Wide-Area Power Grids. In GENI Regional Workshop (GRW) and GENI Engineering Conference (GEC24) on March 2017 – Miami, FL
- 6) A Distributed Delay Minimization Approach for Networked Control Systems in Wide-Area Power Grids. In Graduate Student Research Symposium on March 2017 – USF, Tampa, FL
- 7) KernelDetect: A Modular Kernel-Level Detection and Mitigation using Software-Defined Networking. In Florida Center for Cybersecurity (FC2) conference on April 2017 – USF, Tampa, FL
- 8) Understanding Global Environment for Network Innovations (GENI) and Software-Defined Networking (SDN) for Computer Networking and Security in STEM Education. In Sigcse 2019 conference/NSF Showcase on March 2019 – Minneapolis, MN.
- 9) LatencySmasher: A Software-Defined Networking-Based Framework for End-to-End Latency Optimization. In Florida Business Analytics Forum 2019.

Research Review Roles

- IEEE Access
- SecureComm
- American Journal of Electrical and Computer Engineering (AJECE)
- Big Data Analytics in Cyber-Physical Systems, Elsevier
- International Conference on Cloud Networking (CloudNet), IEEE

Awards & Achievements

- Journals and conferences reviewing, particularly, International Conference on Cloud Networking (CloudNet2018), SecureComm, Big Data Analytics in Cyber-Physical Systems (Elsevier), WASA2018, IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, and ICNC2017
- University of South Florida Graduate Research Assistant Scholarship, 2016 - Present
- Paper “A Distributed Delay Minimization Approach for Networked Control Systems in Wide-Area Power Grids” selected as one of the Best Conference Papers submitted to the 2018 Power & Energy Society General Meeting
- Cisco Certified Network Associate (CCNA)

- Received the highest praise for diligence, preparedness, and care for STEM for Scholars at USF 2018
- Led workshop session in Raspberry Jam at UCF, University of Central Florida, October 2018
- Led cyber security workshop, University of South Florida, Summer 2017
- Led online workshop in machine learning, University of South Florida, Fall 2018

Languages

- Strong English language skills (written, oral, comprehension)
- Strong French language skills (written, oral, comprehension)
- Arabic (written, oral, comprehension)
- Spanish (intermediate level)

References

- 1) Dr. Nasir Ghani
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- 2) Dr. Kaiqi Xiong
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- 3) Dr. Yufeng Xin
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- 4) Dr. Manoug Manougian
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- 5) Dr. Elias Bou-Harb
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Additional references available upon request