Mohammad Borhani

Personal Data

Received M.Sc. degree in Computer Engineering from the School of Electrical and Computer Engineering, University of Tehran. He also received another M.Sc. degree in Software Engineering from the Mälardalen University - ABB Corporate Research, Sweden. He joined the Department of Computer and Information Science of Linköping University as Research Assistant, and he is currently working as Ph.D. student at Linköping University. His research interests include communication networks optimization, VPLS, wireless networking, VANETs, and SDN.

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Education

Ph.D. student in Computer Science	**Linköping, Sweden**
Linköping University	2021 - Now
Msc In Computer Engineering	**Tehran, Iran**
University of Tehran	2017 - 2020
GPA: 17.08/20 (Cumulative GPA: 3.42)	
Msc In Computer Engineering	**Västerås, Sweden**
Mälardalens University - ABB Corporate Research	2019 - 2020
Bsc In Software Engineering	**Arak, Iran**
University of Arak	2012 - 2016
GPA: 17.93/20	

Publications

- M. Borhani, I. Avgouleas, and A. Gurtov. 2022. Optimization of Relay Placement for Scalable Virtual Private LAN Services. In ACM SIGCOMM 2022 Workshop on Future of Internet Routing & Addressing (FIRA '22), August 22, 2022, Amsterdam, Netherlands. ACM, New York, NY, USA

- S. A. Bitaghsir, A. Dadlani, M. Borhani and A. Khonsari, "Multi-Armed Bandit Learning for Cache Content Placement in Vehicular Social Networks," in IEEE Communications Letters, vol. 23, no. 12, pp. 2321-2324, Dec. 2019, doi: 10.1109/LCOMM.2019.2941482. [Abstract]

- M. Borhani, M. Liyanage, A. H. Sodhro, P. Kumar, A. D. Jurcut, and A. Gurtov, "Secure and Resilient Communications in the Industrial Internet," in Guide to Disaster-Resilient Communication Networks, J. Rak and D. Hutchison, Eds. Cham: Springer International Publishing, 2020, pp. 219–242. doi: 10.1007/978-3-030-44685-7. [Abstract]

- K. Gaur, A. Kalla, J. Grover, M. Borhani, A. Gurtov, and M. Liyanage, "A survey of Virtual Private LAN Services (VPLS): Past, present and future," Computer Networks, p. 108245, 2021 [Abstract]

Honors and Awards

- Excellent Thesis Award — 2020
- Awarded as Erasmus+ International Credit Mobility at Mälardalens University, Sweden — 2019
- Entrance to University of Tehran (MSc) as Exceptional Talent from Entrance Exam held between all Computer Students around the country — 2017
- Member of Exceptional Talent at Arak University — 2016
- Graduated as the first top Student, Ranked 1 among other students — 2016
- Ranked as Best Student in Computer Engineering by President of Arak University — 2016

Professional Experience

- **Linköping University**
  - Research Assistant: VPLS Network Optimization [Liu webpage] — 2020 - 2021

- **ABB Corporate Research Center in Sweden**

  - Industrial master thesis project: Anomaly Detection using Machine Learning Approaches in HVDC Power System [Diva Portal]   2020 - 2020

- **University of Tehran**

  - Computer Network Lab and Advanced Probability
    Technical Staff, design and implementation of: Nov 2017 - 2019

    - Modeling of Capacitated Facility Location Problem (CFLP) for networks flow using Approximation Algorithm
    - A Markov chain, and multi-armed bandit Reinforcement Learning algorithms.
    - KRACK Vulnerability IN 802.11r Fast-BSS Transition (FT) - Key Reinstallation Attacks Breaking WPA2 by forcing nonce reuse AND mininet-wifi
    - EAPoL - Extensible Authentication Protocol over LAN - Wireshark and mininet wifi [GitHub]
    - Worm Propagation in Wireless Sensor Networks simulation using matlab
    - 802.11 DCF Throughput Analysis using NS2
    - Wireless Sensor Networks (S-MAC Analysis) using NS2
    - Wireless Handover in IEEE 802.11 - WpaCli in Run time in mininet
    - Fuzzy classifier on Iris Dataset
    - Hands on experience in using Router, Switch and SDN enabled equipment
    - Hands on experience in using RYU SDN controller and Mininet
    - Developing instructions for computer network lab using `Docker` and `GNS3` [GitHub]
    - Designing SDN controller that balanced load between switches
    - OOP Python in Mininet for Simulating VANETs Network, Wireless Networks, and SDN

SELECTED PROJECTS

- Course projects:

  - **Traffic Control App at Arak University**   **Internet Engineering**
    Manager of Student Software Group "DITMA" in designing an Traffic Control App at Arak University
    Technologies: Python, Android, NodeJS

  - **Back-Propagation in Artificial Neural Networks**   **Machine Learning**
    Implementation of Back-Propagation ANN to predict special Datasets

  - **Secure IoT Networks using multi-table Flow**   **Computer Networks Lab**
    Implementation of controller which identifies different IoT nodes so as to make them more secure
    Technologies: RYU, Controller, Openflow

TECHNICALS SKILLS

- **Network skills:**   ○ **Familiar:** Openstack

  - **Expert:** Mininet, Ryu Controller, Scapy, mininet wifi

  - **Proficent:** Openflow protocol, SDN network

  - **Familiar:** GNS3 network simulator, MPLS, Cisco switch

- **Cloud skills:**

  - **Fluent:** Docker

- **Frameworks and tools:**
  - **Proficent:** Anaconda, Jupyterlab, Python data analysis libraries: NumPy, SciPy, Pandas, Matplotlib, Gurobi

- **Programming language and OS:**
  - **Expert:** Python, Linux
  - **Familiar:** TCL, C++, T-SQL, matlab,

EXTRACURRICULAR ACTIVITY

- **Master Thesis Supervision**
  - A Performance Analysis of Intrusion Detection with Snort and Security Information Management [LiU Supervisor]

- **Teaching Assistant (Undergraduate)**
  - **Computer Networks -TDTS06 [LiU TDTS06]**   Sep 2021 - November 2021
  - **Computer Networks and Distributed Systems -TDTS04 [LiU TDTS04]**   Jan 2021 - March 2021

  - **Computer Network Lab** (Fall, Spring) [UT Course]   Sep 2018 - Jan 2019

- **Teaching Assistant (Graduate)**
  - **Performance Evaluation of Computer Systems** (Fall) [UT Course]   Jan 2019