

Morteza Shoushtari

Ph.D. in Electrical and Computer Engineering
U.S. permanent resident (Green card holder)

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SUMMARY

I completed my Ph.D. in Electrical and Computer Engineering from Brigham Young University (BYU) in 2023, specializing in physical layer security and error correction coding in wireless communications. Prior to pursuing my Ph.D., I gained six years of work experience in the tech industry, working as an IT administrator at Huawei Technologies Co., and as a network engineer at JYANE Construction Co. and Persia Cloud Co.

INTERESTS

- Wired/Wireless/Cellular Networking
- Network Security (Cybersecurity, Quantum Cryptography, Physical Layer Security)
- Cloud Computing
- Error-Correction Coding (Turbo, Polar, LDPC, and Viterbi algorithm)

EDUCATION

Ph.D., in Electrical and Computer Engineering (ECE),
Brigham Young University, Utah, USA

Dissertation title: “Securing Wireless Communication via Information-Theoretic Approaches: Innovative Schemes and Code Design Techniques.”

- Years: 2019 - 2023
- GPA: 3.74/4

M.Sc., Information Technology (IT),
Shiraz University, Shiraz, IRAN

- Years: 2011 - 2013

B.Sc., Computer Engineering (CE),
Sadjad University of Technology, Mashhad, IRAN

- Years: 2006 - 2010

SKILLS

- Deep knowledge of wired/wireless/cellular communications, protocols, and procedures.
- Deep and broad understanding of cryptosystems and physical layer security.
- Familiarity with cloud computing technologies, and procedures.
- Ability to research and tackle problems in innovative ways.
- Experience with network configuration.
- Able to work in a team and independently.

WORK

EXPERIENCES

Brigham Young University, UTAH, USA
Graduate Research Assistant

Jan 2019 - July 2023

- Discovered new properties of secret error-correcting coding (SECC) in the perspectives of information and coding theory.
- Devised a high-speed algorithm to construct the optimal code in Nested Linear Secrecy Codes, enhancing code identification and selection efficiency.
- Conducted a detailed assessment and visualized secrecy problems such as eavesdropping in aeronautical mobile telemetry communication and suggested the use of secrecy coding and specialized version of post-quantum cryptosystems for this type of communication systems.

IT Dep. HUAWEI Company, Tehran, Iran **Aug 2016 - Aug 2017**

IT Administrator

- Managed communication networks, monitored network performance, and resolved any technical issues that arose.
- Provided first-level support to more than 250 employees.
- Performed installations and configurations of various network devices such as routers, switches, wireless access points, cameras, and video conferencing systems.

IT Dep. JYAN Company, Tehran, Iran **Jan 2016 - Aug 2016**

Network Engineer

- Managed communication networks, monitored network performance and resolved any technical issues that arose.
- Delivered first-level support to more than 180 employees.
- Performed installations and configurations of various network devices such as routers, switches, wireless access points, cameras, and video conferencing systems.

IT Dep. Persia Cloud Company, Tehran, Iran **Jun 2015 - Jan 2016**

Network Engineer

- Administered IAAS and PAAS layer of company's cloud platforms (2X, IIRAS).
- Managed company's Microsoft application servers (CRM, SharePoint, Lync).

IT Dep. LOTUS Company, Tehran, Iran **Nov 2013 - Jun 2015**

Website Developer

- Developed and managed the company's website (lotuslaptop.com).

IT Dep. KARMA Engineering Company, Iran **Nov 2011 - Nov 2013**

Technical Support

- Managed communication networks and troubleshooted technical issues.
- Delivered first-level technical support to more than 50 clients.

SELECTED
PUBLICATION

- **Morteza Shoushtari** and Willie Harrison, "Optimizing Finite Blocklength Nested Linear Codes: Using the Worst Code to Find the Best Code", under review in Proc. IEEE Transactions on Information Forensics and Security, 2023.
- Ethan Angerbauer, **Morteza Shoushtari**, Kalin Norman, Benjamin Jensen, Willie Harrison, and Michael Rice "Towards Practical Physical-Layer Security: Channel Measurements and Pedestrian Traffic", under review in Proc. IEEE Transactions on Information Theory, 2023.
- Truman Welling, Andrew Swain, **Morteza Shoushtari**, Elise Beard and Willie Harrison, "Classification of Coset Codes for Wiretap Channels", under review in Proc. IEEE Transactions on Information Theory, 2023.
- **Morteza Shoushtari**, Farah Arabian and Willie Harrison, "From Privacy Protection to Analyzing Users' Behavior: The Crucial Role of Information Theory in the Metaverse", IEEE Inter-mountain Engineering, Technology, and Computing Conference, 2023.
- Ali Nikkhah, **Morteza Shoushtari**, Bahareh Akhbari, and Willie Harrison, "Secrecy Coding for the Binary Symmetric Wiretap Channel via Linear Programming", under review in Proc. IEEE Transactions on Information Forensics and Security, 2023.
- Farah Arabian, **Morteza Shoushtari**, and Michael Rice "A Comparative Study of Waveforms Across Mobile Cellular Generations: From 0G to 5G and Beyond", under review in Proc. IEEE Access, 2023.
- **Morteza Shoushtari**, Farah Arabian and Willie Harrison, "Post-Quantum Cryptography Based on Codes: A Game Changer for Secrecy in Aeronautical Mobile Telemetry" in Proc. of the International Telemetry Conference (ITC), Las Vegas, NV, US, Oct. 2022.
- **Morteza Shoushtari** and Willie Harrison, "Secrecy coding in the Integrated Network

Enhanced Telemetry (iNET)” in Proc. of the International Telemetry Conference (ITC), Las Vegas, NV, US, Oct. 2021.

- **Morteza Shoushtari** and Willie Harrison, “New Dual Relationships for Error-Correcting Wiretap Codes” in Proc. of IEEE Information Theory Workshop (ITW), Kanazawa, Japan, Oct. 2021.
- Willie Harrison and **Morteza Shoushtari**, “On Caching with Finite Blocklength Coding for Secrecy over the Binary Erasure Wiretap Channel” in Proc. of IEEE Wireless Telecommunications Symposium (WTS), San Francisco, US, Apr. 2021.

AWARDS AND HONORS

- Third place award, IEEE Intermountain Engineering, Technology, and Computing Conference (IEEE i-ETC), 2023.
- Best paper award, International Telemetry Conference, 2022.
- Second best graduate student paper award, International Telemetry Conference, 2021.
- Member of IEEE Communication Society (ComSoc).
- Member of IEEE Information Theory Society (ITSoc).
- Outstanding IT engineer in Huawei Technologies Company, 2017.

CERTIFICATES AND OTHER SKILLS

- Network certificate:
 - CompTIA A+
 - Network+
 - CCNA (Cisco Certified Network Associate)
 - MCITP (Microsoft Certified IT Professional)
 - HCNA (Huawei Certified Network Associate)
- Knowledgeable about:
 - Cellular protocol stack (control plane, data plane, NAS/RRC/PDCP/RLC/MAC/PHY)
 - 5G and LTE features
 - Wired/Wireless network architecture, infrastructure, and protocols
 - Cloud Computing (AWS, Google cloud)
 - Routing protocols (BGP, EIGRP, OSPF, RIP, IS-IS)
 - Network monitoring and troubleshooting
 - Network device configuration
 - IoT technology
 - Network management tools (Wireshark, SolarWinds)
 - Security concepts (cryptosystems, attacks, vulnerabilities, standards)
 - Programming languages such as C++/Python/Matlab
 - Windows server administration
 - Network documentation and reporting
- Other skills:
 - Highly detailed-oriented
 - Innovative problem-solving abilities

REFERENCES

Available upon request.