Jeman Park

ADDRESS: Room 111, HPA 1, University of Central Florida
PHONE: +1 - 716 - 429 - 7410
EMAIL: parkjeman@knights.ucf.edu
WEBSITE: www.cs.ucf.edu/˜jpark/

RESEARCH INTERESTS

Domain Name System (DNS) Security
The detection and mitigation of DDoS Attack
Internet of Things (IoT) Security

EDUCATION

AUG. 2016 - Present	**University of Central Florida**, Orlando, FL Ph.D. candidate in COMPUTER SCIENCE (Advisor: Dr. David Mohaisen) Expected Graduation: **August. 2020** Dissertation: **Improving the Security of Critical Infrastructure: Metrics, Measurements, and Analysis**
MAR. 2008 - FEB. 2016	**Korea University**, Seoul, South Korea B.S. in COMPUTER AND COMMUNICATION ENGINEERING

EXPERIENCE

AUG. 2016 - PRESENT	UNIVERSITY OF CENTRAL FLORIDA (UCF), Orlando, Florida, US *Research Assistant under Prof. DAVID MOHAISEN at the Security Analytics Research Lab*
JAN. 2020 - APR. 2020	UNIVERSITY OF CENTRAL FLORIDA (UCF), Orlando, Florida, US *Teaching Assistant for DAVID MOHAISEN in Foundations of Computer Security and Privacy.*
MAY. 2019 - AUG. 2019	US ARMY RESEARCH LAB (ARL), Adelphi, Maryland, US *Researcher (Internship) - Game Theoretical Analysis of Adversarial Behaviors*
MAY. 2018 - AUG. 2018	US ARMY RESEARCH LAB (ARL), Adelphi, Maryland, US *Researcher (Internship) - IoT Security Anlalysis using Graph Theory*
JAN. 2014 - FEB. 2014	AHNLAB (Information Security Vendor), Seoul, South Korea *Software Developer (Internship)*
DEC. 2012 - DEC. 2015	KOREA UNIVERSITY, Seoul, South Korea *Undergraduate Researcher under Prof. HYOGON KIM at the Wireless Data Communication Lab*

AWARDS

Travel grant JUN. 2019	In recognition of outstanding interest and commitment for the dependable system and network (IEEE/IFIP DSN 2019)
KOCSEA award NOV. 2017	In recognition of an outstanding research in the competition in KOCSEA technical symposium (3rd place)
Travel grant JUN. 2017	In recognition of outstanding interest and commitment for the advanced knowledge on network and system (ACM Mobisys 2017)
Best presentation JUL. 2013	In recognition of an outstanding presentation in Korea Computer Congress (KCC 2013)

SCHOLARSHIPS

2016 - present	**Research assistant scholarship** Scholarships for research assistant students at University of Central Florida
2013 - 2014	**National Scholarship for Software Specialized Program** Government scholarships for qualified students in software-specialized program
2008 - 2009	**National Scholarship in Natural Sciences and Engineering** Government scholarships for high-grading students on the National College Scholastic Ability Test (Korean SAT)

Research Experience

2018 - present	**The behavioral analysis of open resolvers** Figuring out the distribution and the behavior of open resolver and exploring possible threats
2017 - 2019	**Internet of Things (IoT) security** Analyzing the possible attacks on the IoT devices and building a system for securing the smart-home networks
2017 - 2018	**The evaluation of Very Short Intermittent (VSI) DDoS Attack** Evaluated the VSI-DDoS attack in real environment with imperfect synchronization between bots
2017 - 2018	**Proactive detection of malicious domain name** Proposed a system time difference-based feature for malicious domain name detection
2014 - 2015	**The implementation of vehicular communication on a smartphone** Implemented and validated the potential of smartphones as Wireless Access in Vehicular Environment (WAVE) devices using Software Defined Radio (SDR)
2014 - 2015	**An energy-saving scheme in a video streaming service** Designed and implemented a user-side scheme reducing smartphone power consumption while watching video over LTE
2012 - 2013	**The congestion control in Vehicular Ad-hoc Networks (VANETs)** Designed and implemented a scheduling algorithm to reduce collision among periodically broadcasted packets in VANETs environment

Public Presentations

Feb. 2020	**"The Operation and Security of Domain Name System."** Guest lecture in the class "Computer Security"
Aug. 2019	**"Cyber Deception in the Internet of Battlefield Things: Techniques, Instances, and Assessments."** WISA 2019, Jeju, South Korea
Jun. 2019	**"Where Are You Taking Me? Behavioral Analysis of Open DNS Resolvers."** IFIP/IEEE DSN 2019, Portland, OR, US
Feb. 2019	**"Behavioral Analysis of Open DNS Resolvers."** Talk at the Global Research Laboratory Workshop
Oct. 2018	**"Low-rate DDoS Attacks and Mitigation Strategy"** Guest lecture in the class "Advanced Topics in Computer Security"
Aug. 2018	**"Timing is Almost Everything: Realistic Evaluation of the Very Short Intermittent DDoS Attacks."** PST 2018, Belfast, UK
Apr. 2018	**"QoI: Assessing Participation in Threat Information Sharing."** IEEE ICASSP 2018, Calgary, Canada
Sep. 2015	**"Exploring Smartphones as WAVE Devices."** IEEE VTC2015-Fall, Boston, MA, US

Publications

Conference Publications

1. Afsah Anwar, Hisham Alasmary, **Jeman Park**, An Wang, Songqing Chen, and David Mohaisen, *"Statically Dissecting Internet of Things Malware: Analysis, Characterization, and Detection"*, Proceedings of the 22nd International Conference on Information and Communications Security, **ICICS 2020**, Virtual Conference (due to COVID-19), Aug 24-27, 2020.

2. **Jeman Park**, Aminollah Khormali, Manar Mohaisen, and Aziz Mohaisen, *"Where Are You Taking Me? Behavioral Analysis of Open DNS Resolvers"*, Proceedings of the 49th IEEE/IFIP International Conference on Dependable Systems and Networks, **IEEE/IFIP DSN 2019**, Portland, OR, US, Jun 24-27, 2019.

3. Ahmed Abusnaina, Aminollah Khormali, Hisham Alasmary, **Jeman Park**, Afsah Anwar, and Aziz Mohaisen, *"Adversarial Learning Attacks on Graph-based IoT Malware Detection System"*, Proceedings of the the 39th IEEE International Conference on Distributed Computing Systems, **IEEE ICDCS 2019**, Dallas, TX, US, Jul 7-10, 2019.

4. **Jeman Park**, Aziz Mohaisen, Charles Kamhoua, Michael Weisman, Nandi Leslie, and Laurent Njilla, *"Cyber Deception in the Internet of Battlefield Things: Techniques, Instances, and Assessments"*, Proceedings of the 20th World Conference on Information Security Applications, **WISA 2019**, Jeju, South Korea, Aug. 21-24, 2019.

5. Hisham Alasmary, Afsah Anwar, **Jeman Park**, Jinchun Choi, DaeHun Nyang, and Aziz Mohaisen: *"Graph-based Comparison of IoT and Android Malware"*, Proceedings of the 16th International Conference on Social Networks, **CSoNet 2018**, Shanghai, China, Dec 18-20, 2018

6. **Jeman Park**, DaeHun Nyang, and Aziz Mohaisen: *"Timing is Almost Everything: Realistic Evaluation of the Very Short Intermittent DDoS Attacks"*, Proceedings of the 16th International Conference on Privacy, Security and Trust, **PST 2018**, Belfast, Northern Ireland, United Kingdom, Aug 28-30, 2018

7. **Jeman Park**, Hisham Alasmary, Omar Al-Ibrahim, Charles Kamhoua, Kevin Kwiat, Laurent Njilla, and Aziz Mohaisen: *"QoI: Assessing Participation in Threat Information Sharing"*, Proceedings of the 43rd International Conference on Acoustics, Speech and Signal Processing, **IEEE ICASSP 2018**, Calgary, Canada, Apr 15-20, 2018

8. Jeffrey Spaulding, **Jeman Park**, Joongheon Kim, and Aziz Mohaisen: *"Proactive Detection of Algorithmically Generated Malicious Domains"*, Proceedings of the 32nd International Conference on Information Networking, **ICOIN 2018**, Chiang Mai, Thailand, Jan 10-12, 2018

9. **Jeman Park**, Jihye Kim, Seungho Kuk, Yongtae Park, and Hyogon Kim: *"Exploring Smartphones as WAVE Devices"*, Proceedings of the 82nd Vehicular Technology Conference, **IEEE VTC 2015-Fall**, Boston, MA, US, Sep 6-9, 2015

10. **Jeman Park**, Jihoon Ha, and Hyogon Kim: *"N-Screen Environment Implementation Using Extended UDP"*, Proceedings of the KIISE Autumn Scientific Meeting, Jeju, South Korea, Nov 15-16, 2013

11. **Jeman Park**, Yongtae Park, and Hyogon Kim: *"Phase Control Algorithm for Resolution of Periodic Transmission Collision in Broadcast Environments"*, Proceedings of the Korea Computer Congress, KIISE KCC 2013, Yeosu, South Korea, Jun 26-28, 2013

Journal Publications

1. **Jeman Park**, Manar Mohaisen, DaeHun Nyang, and David Mohaisen: *"Assessing the Effectiveness of Pulsing Denial of Service Attacks under Realistic Network Synchronization Assumptions"*, **Elsevier Computer Networks (COMNET)**, Vol. 173, 2020

2. Jinchun Choi, Mohammed Abuhamad, Ahmed Abusnaina, Afsah Anwar, Sultan Alshamrani, **Jeman Park**, DaeHun Nyang, and David Mohaisen: *"Understanding the Proxy Ecosystem: A Comparative Analysis of Residential and Open Proxies on the Internet"*, **IEEE Access**, 2020

3. Soohyun Park, Yeongeun Kang, **Jeman Park**, and Joongheon Kim: *"Self-Controllable Super-Resolution Deep Learning Framework for Surveillance Drones in Security Applications"*, **EAI Endorsed Transactions on Security and Safety**, 2020

4. **Jeman Park**, Jinchun Choi, DaeHun Nyang, and Aziz Mohaisen: *"Transparency in the New gTLD Era: Evaluating the DNS Centralized Zone Data Service"*, **IEEE Transactions on Network and Service Management (TNSM)**, Vol. 16, No. 4, pp. 1782-1796, 2019

5. Hisham Alasmary, Amin Khormali, Afsah Anwar, **Jeman Park**, Jinchun Choi, Ahmed Abusnaina, Amro Awad, DaeHun Nyang, and Aziz Mohaisen: *"Analyzing and Detecting Emerging Internet of Things Malware: A Graph-based Approach"*, **IEEE Internet of Things Journal**, Vol. 6, No. 5, pp. 8977-8988, 2019

6. Aziz Mohaisen, Omar Alrawi, **Jeman Park**, Joongheon Kim, DaeHun Nyang, and Manar Mohaisen: *"Network-based Analysis and Classification of Malware using Behavioral Artifacts Ordering"*, **EAI Endorsed Transactions on Security and Safety**, Vol. 5, No. 16, 2018

7. Jeffrey Spaulding, **Jeman Park**, Joongheon Kim, DaeHun Nyang, and Aziz Mohaisen: *"Thriving on Chaos: Proactive Detection of Command and Control Domains in Internet of Things-Scale Botnets using DRIFT"*, **Wiley Transactions on Emerging Telecommunications Technologies**, e3505, 2018

8. Song Gun Lee, **Jeman Park**, and Hyogon Kim: *"A User-Side Energy-Saving Video Streaming Scheme for LTE Devices"*, **IEEE Communication Letters**, Vol. 19, No. 6, pp. 965-968, 2015

Posters and Demos

1. **Jeman Park**, Manar Mohaisen, and Aziz Mohaisen: *"Investigating DNS Manipulation by Open DNS Resolvers"*, The 15th International Conference on emerging Networking EXperiments and Technologies, **ACM CoNEXT**, Orlando, FL, US, Dec 9-12, 2019

2. Ahmed Abusnaina, Aminollah Khormali, Hisham Alasmary, **Jeman Park**, Afsah Anwar, Ulku Meteriz, and Aziz Mohaisen: *"Breaking Graph-based IoT Malware Detection System"*, The 12th ACM Conference on Security and Privacy, **ACM WiSec**, Miami, FL, US, May 15-17, 2019

3. Ahmed Abusnaina, Aminollah Khormali, Hisham Alasmary, **Jeman Park**, Afsah Anwar, Ulku Meteriz, and Aziz Mohaisen: *"Leveraging Adversarial Learning into Graph-based IoT Malware Detection Systems"*, Network and Distributed System Security Symposium, **ISOC NDSS**, San Diego, CA, US, Feb 24-27, 2019

4. Hisham Alasmary, Aminollah Khormali, Afsah Anwar, **Jeman Park**, Aziz Mohaisen, and DaeHun Nyang: *"Analyzing, Comparing, and Detection Emerging Malware: A Graph-based Approach"*, Network and Distributed System Security Symposium, **ISOC NDSS**, San Diego, CA, US, Feb 24-27, 2019

5. **Jeman Park** and Aziz Mohaisen: *"Beyond Free Riding: Quality of Indicators for Assessing Participation in Threat Information Sharing"*, The 18th Korean Computer Scientists and Engineers Association in America Technical Symposium, **KOCSEA**, Las Vegas, NV, US, Nov 10-11, 2017

Under Review

1. **Jeman Park**, Rhongho Jang, Manar Mohaisen, and David Mohaisen, *"A Large-Scale Behavioral Analysis of the Open DNS Resolvers on the Internet"*, Submitted to the IEEE/ACM Transactions on Networking, **IEEE/ACM ToN**.

PROFESSIONAL SERVICE

2020	External Reviewer	**IEEE Transactions on Network and Service Management**
2020	External Reviewer	**Elsevier Computer Communications**
2020	External Reviewer	**Elsevier Computer Networks**
2019	Organizing Committee (Volunteer)	ACM CoNEXT 2020
2019	Staff (Volunteer)	IEEE INFOCOM 2020 TPC Meeting
2019	External Reviewer	**IEEE Transactions on Mobile Computing**
2019	External Reviewer	**IEEE Communications Surveys & Tutorials**
2019	External Reviewer	IEEE LANMAN 2019
2019	Web Chair	ACM CoNEXT 2019
2018	Reviewer	**ETRI Journal** (Wiley)
2017	Organizing Committee (Volunteer)	ACM Mobisys 2017

TECHNICAL SKILLS

Well Experienced:	PYTHON, JAVA, C/C++, LATEX, GNUplot
Some Experienced:	LINUX, mySQL, ANDROID with JNI
Basic Experienced:	PHP, JSP, NodeJS., HTML, STRUTS, C#

ACTIVITIES & OTHER EXPERIENCE

SEP. 2018 - DEC. 2019	Korean Student Association at University of Central Florida **President**	
SEP. 2012 - AUG. 2013	Korea University Korean Language Center **Korean Language Tutor for International Student (Volunteer)**	
MAY. 2010 - FEB. 2012	Republic of Korea Army **Soldier serving mandatory military service (Honorable discharge)**	
MAR. 2008 - FEB. 2009	Student Council in College of Information and Communication, Korea Univ. **Policy Director**	