

# Taejoong (Tijay) Chung

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*Assistant Professor (tijay@vt.edu, <https://taejoong.github.io>)*

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## Education

- 09/2009–02/2015 **Ph.D.**, Computer Science and Engineering, Seoul National University, Seoul, Korea.  
◦ Supervisors: Prof. Yanghee Choi and Prof. Ted “Taekyoung” Kwon
- 03/2005–09/2009 **B.S.**, Computer Science and Engineering, POSTECH (Pohang University of Science and Technology), Pohang, Korea.

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## Professional Experiences

- 08/2020–present **Assistant Professor**, Department of Computer Science, Virginia Tech, Blacksburg, VA, United States.
- 08/2018–07/2020 **Assistant Professor**, Department of Computer Science, Rochester Institute of Technology (RIT), Rochester, NY, United States.
- 09/2015–08/2018 **Postdoctoral Researcher**, Northeastern University, Boston, MA, United States.
- 03/2015–02/2016 **Postdoctoral Researcher**, Seoul National University, Seoul, Korea.
- 06/2013–03/2014 **Research Intern**, Cisco Systems, Cambridge, MA, United States.
- 08/2011–02/2015 **Research Assistant**, Seoul National University, Seoul, Korea.

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## Honors and Awards

- 2019 Distinguished Paper Award, ACM IMC’19
- 2019 Applied Networking Research Prize (ANRP), IETF’105
- 2017 Distinguished Paper Award, USENIX Security’17
- 2015 Microsoft Azure Research “Award Program: Microsoft Azure for Research Supports \$20,000”
- 2010 Best Paper Award, IEEE Communication Society Seoul Chapter

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## Grants

- 2021 Enhancing the Privacy and Reliability of Massive-scale Bluetooth Low Energy Contact Tracing  
◦ Commonwealth Cyber Initiative, 06/2021 – 05/2022. Co-Primary Investigator, joint with Daphne Yao (VT), Carol Fung (VCU) \$100,000 (VT), \$150,000 (total)
- 2019 CNS Core: Large: Collaborative Research: Towards an Evolvable Public Key Infrastructure  
◦ National Science Foundation. CNS-1901090, 06/2019 – 05/2022. Primary Investigator, joint with Dave Levin (UMD), Bruce M. Maggs (Duke University), Alan Mislove (NEU), Christo Wilson (NEU), Bryan Parno (CMU). \$300,000 (RIT), \$2,000,000 (total)
- 2019 CRII: SaTC: Measuring and Improving the Management of Resource Public Key Infrastructure (RPKI)  
◦ National Science Foundation. CNS-1850465, 10/2019 – 09/2021. Primary Investigator. \$166,561

- 2015 Personal Recommendation System and Privacy Protection through Big Data Analysis on Online Social Networks
- National Research Foundation of Korea (NRF). NRF-2016018668, 03/2015 – 02/2016. Primary Investigator. ₩50,000,000 ( $\approx$  \$44,000)

## Refereed Conference Publications

- PAM'21 **Measurement and Analysis of Automated Certificate Reissuance**  
O. Omolola, R. Roberts, I. Ashiq, **T. Chung**, D. Levin, and A. Mislove  
PAM, Virtual Conference, Mar. 2021
- IMC'20 **The Reality of Algorithm Agility: Studying the DNSSEC Algorithm Life-Cycle**  
M. Mueller, W. Toorop, **T. Chung**, J. Janssen, and R. van Rijswijk-Deij  
IMC, Pittsburgh, United States, Oct. 2020
- FCS'20 **Assertion-Carrying Certificates**  
W. Aqeel, Z. Hanif, J. Larisch, O. Omolola, **T. Chung**, D. Levin, B. Maggs, A. Mislove, B. Parno, and C. Wilson  
the Workshop on Foundations of Computer Security, Boston, United States, June 2020
- USENIX Security'20 **A Longitudinal and Comprehensive Study of the DANE Ecosystem in Email**  
H. Lee, A. Gireesh, R. van Rijswijk-Deij, T. Kwon, **T. Chung**  
USENIX Security, Boston, United States, August 2020
- CCS'19 **You Are Who You Appear to Be: A Longitudinal Study of Domain Impersonation in TLS Certificates**  
R. Roberts, Y. Goldschlag, R. Walter, **T. Chung**, A. Mislove, D. Levin  
CCS, London, United Kingdom, Nov. 2019
- IMC'19 **RPKI is Coming of Age: A Longitudinal Study of RPKI Deployment and Invalid Route Origins**  
**T. Chung**, E. Aben, T. Bruijnzeels, B. Chandrasekaran, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, R. van Rijswijk-Deij, J. P. Rula, and N. Sullivan  
IMC, Amsterdam, The Netherlands, Oct. 2019
- IMC'19 **Roll, Roll, Roll your Root: A Comprehensive Analysis of the First Ever DNSSEC Root KSK Rollover**  
M. Müller, M. Thomas, D. Wessels, W. Hardaker, **T. Chung**, W. Toorop, and R. van Rijswijk-Deij  
IMC, Amsterdam, The Netherlands, Oct. 2019
- NDSS'19 **maTLS: How to Make TLS middlebox-aware?**  
H. Lee, Z. Smith, J. Lim, G. Choi, S. Chun, **T. Chung**, and T. Kwon  
NDSS, San Diego, USA, Feb. 2019
- IMC'18 **Is the Web Ready for OCSP Must Staple?**  
**T. Chung**, J. Lok, B. Chandrasekaran, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, J. Rula, N. Sullivan, and C. Wilson  
IMC, Boston, USA, Nov. 2018
- CSCW'18 **Privacy Leakage in Event-based Social Networks: A Meetup Case Study**  
**T. Chung**, J. Han, D. Choi, T. Kwon, J. Rha, and H. Kim  
CSCW, Jersey City, USA, Nov. 2018
- IMC'17 **Understanding the Role of Registrars in DNSSEC Deployment**  
**T. Chung**, R. van Rijswijk-Deij, D. Choffnes, A. Mislove, C. Wilson, D. Levin, and B. M. Maggs  
IMC, London, UK, Nov. 2017

- USENIX Security'17 **A Longitudinal, End-to-End View of the DNSSEC Ecosystem**  
**T. Chung**, R. van Rijswijk-Deij, B. Chandrasekaran, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, and C. Wilson  
 USENIX Security, Vancouver, Canada, Aug. 2017
- IMC'16 **Measuring and Applying Invalid SSL Certificates: The Silent Majority**  
**T. Chung**, Y. Liu, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, and C. Wilson  
 IMC, Santa Monica, CA, USA, Nov. 2016
- IMC'16 **Tunneling for Transparency: A Large-Scale Analysis of End-to-End Violations in the Internet**  
**T. Chung**, D. Choffnes, and A. Mislove  
 IMC, Santa Monica, CA, USA, Nov. 2016
- CCS'16 **Measurement and Analysis of Private Key Sharing in the HTTPS Ecosystem**  
 F. Cangialosi, **T. Chung**, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, and C. Wilson  
 CCS, Vienna, Austria, Oct. 2016
- COSN'15 **Characterizing Conversation Patterns in Reddit: From the Perspectives of Content Properties and User Participation Behaviors**  
 D. Choi, J. Han, **T. Chung**, Y. Ahn, B. Chun, and T. Kwon  
 COSN, Stanford, CA, USA, Nov. 2015
- COSN'15 **Sharing Topics in Pinterest: Understanding Content Creation and Diffusion Behaviors**  
 J. Han, D. Choi, A. Choi, **T. Chung**, T. Kwon, J. Rha, and C. Chuah  
 COSN, Stanford, CA, USA, Nov. 2015
- ANCS'14 **CoRC: Coordinated Routing and Caching for Named Data Networking**  
 H. Choi, J. Yoo, **T. Chung**, N. Choi, T. Kwon, and Y. Choi  
 ANCS, Marina del Rey, CA, USA, Oct. 2014
- WWW'14 **Unveiling Group Characteristics in Online Social Games: A Socio-Economic Analysis**  
**T. Chung**, J. Han, D. Choi, T. Kwon, H. K. Kim and Y. Choi  
 WWW, Seoul, Korea, Apr. 2014
- IFIP Networking'13 **Spatial and Temporal Locality of Content in BitTorrent: A Measurement Study**  
**T. Chung**, J. Han, H. Lee, J. Kangasharju, T. Kwon, and Y. Choi  
 IFIP Networking, Brooklyn, NY, USA, May 2013
- SIGMETRICS'12 **Bundling Practice in Bittorrent: What, How, and Why**  
 J. Han, S. Kim, **T. Chung**, T. Kwon, H. Kim, and Y. Choi  
 SIGMETRICS, London, UK, Jun. 2012
- IFIP Networking'12 **Content Publishing and Downloading Practice in BitTorrent**  
 S. Kim, J. Han, **T. Chung**, T. Kwon, H. Kim, and Y. Choi  
 IFIP Networking, Prague, Czech, May 2012
- GLOBECOM'12 **Bandwidth Allocation for BitTorrent under Multi-Torrent Environments**  
 J. Choi, J. Han, **T. Chung**, E. Cho, T. Kwon, and Y. Choi  
 GLOBECOM, Houston, Texas, United States, Dec. 2011

## Journal Publications

### Rolling with Confidence: Managing the Complexity of DNSSEC Operations

Moritz Muller, **T. Chung**, Alan Mislove, and Roland van Rijswijk-Deij  
 IEEE Transactions on Network and Service Management (IEEE TNSM), 2019

### Predicting Content Consumption from Content-to-Content Relationships

Jinyoung Han, Daejin Choi, **T. Chung**, Chen-Nee Chuah, Hyun-chul Kim, and Ted "Taekyoung" Kwon  
 Elsevier Journal of Network and Computer Applications (JNCA), Vol. 132, pp. 1, April 2019

### **A First Look at Certification Authority Authorization (CAA)**

Quirin Scheitle, **T. Chung**, Jens Hiller, Oliver Gasser, Johannes Naab, Roland van Rijswijk-Deij, Oliver Hohlfeld, Ralph Holz, Dave Choffnes, Alan Mislove, and Georg Carle

ACM SIGCOMM Computer Communications Review (CCR), Vol. 48, pp. 2, Apr. 2018

### **An End-to-End View of DNSSEC Ecosystem Management**

**T. Chung**, R. van Rijswijk-Deij, B. Chandrasekaran, D. Choffnes, D. Levin, B. M. Maggs, A. Mislove, and C. Wilson

USENIX Magazine ;login:, Vol. 42, No. 4, Dec. 2017

### **A Target-centric Surveillance System based on Localization and Social Networking**

J. Han, N. Choi, **T. Chung**, T. Kwon, and Y. Choi

Multimedia Tools and Applications (MTAP), Vol. 73, Issue 1, pp. 241-265, Nov. 2014

### **Strategic Bundling for Content Availability and Fast Distribution in BitTorrent**

J. Han, **T. Chung**, S. Kim, H. Kim, J. Kangasharju, T. Kwon, and Y. Choi

Computer Communication (COMCOM), Vol. 43, pp. 64-73, May 2014

### **Bundling Practice in Bittorrent: What, How, and Why**

J. Han, S. Kim, **T. Chung**, T. Kwon, H. Kim, and Y. Choi

ACM SIGMETRICS Performance Evaluation Review, Vol. 40, No. 1, pp. 77-88, Jun. 2012.

### **How Prevalent is Content Bundling in BitTorrent?**

J. Han, **T. Chung**, S. Kim, T. Kwon, H. Kim, and Y. Choi

ACM SIGMETRICS Performance Evaluation Review, Vol. 39, No. 1, pp. 319-320, Jun. 2011.

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## Posters

### IMC'19 **Tracking Registrar Support for DNSSEC: It's Slowly Getting Better**

Spencer Roth, R. van Rijswijk-Deij, and **T. Chung**

IMC, Amsterdam, The Netherlands, USA, Aug. 2017

### SIGCOMM'17 **The Root Canary: Monitoring and Measuring the DNSSEC Root Key Rollover**

R. van Rijswijk-Deij, **T. Chung**, D. Choffnes, A. Mislove, and W. Toorop

SIGCOMM, Los Angeles, CA, USA, Aug. 2017

### ACNS'14 **Toward Terabyte-scale Caching with SSD in a Named Data Networking Router**

W. So, **T. Chung**, H. Yuan, D. Oran, and M. Stapp

ANCS, Marina del Rey, CA, USA, Oct. 2014

### PAM'13 **Spatial and Temporal Locality of Swarm Dynamics in BitTorrent**

**T. Chung**, J. Han, H. Lee, J. Kangasharju, T. Kwon, and Y. Choi

PAM, Hong Kong, March. 2013.

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## Non-Refereed Conference Publications

### TPRC'17 **Investigating End-To-End Integrity Violations in Internet Traffic**

A. Mislove, D. Choffnes, and **T. Chung**

TPRC, Arlington, VA, USA, Sept. 2017

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## Fellowships

2012–2016 **Samsung Ph.D. Industrial Scholarship.**

2010–2012 **Hyundai (Hajung) Scholarship.**

Summer 2007 **POSTECH Student Exchange Program to UCLA.**

2005–2008 **National Science & Technology Scholarship, KOSAF(Korea Student Aid Foundation).**

## Service

### **Award Committee Member.**

- '21 Applied Networking Research Prize (ANRP)

### **Program Committee Member.**

- '21 The ACM/IRTF Applied Networking Research Workshop (ANRW)
- '21 Internet Measurement Conference (IMC)
- '21 IEEE International Conference on Network Protocols (ICNP)
- '21 The Passive and Active Measurement (PAM)
- '20 The ACM/IRTF Applied Networking Research Workshop (ANRW)
- '20 The Network Traffic Measurement and Analysis Conference (TMA)
- '20 The Passive and Active Measurement (PAM)
- '19 Internet Measurement Conference (IMC)
- '19 International Conference on Social Informatics (SocInfo)
- '19 The Passive and Active Measurement (PAM)
- '19 International AAAI Conference on Web and Social Media (ICWSM)
- '18 International AAAI Conference on Web and Social Media (ICWSM)
- '17 International AAAI Conference on Web and Social Media (ICWSM)
- '17 IEEE International Conference on Ubiquitous Computing and Communications (IUCC)
- '14 Poster Selection Committee of ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS)

### **Shadow Program Committee Member.**

- '18 ACM Internet Measurement Conference (IMC)
- '17 ACM Internet Measurement Conference (IMC)

### **Artifact Evaluation Member.**

- '20 International Conference on emerging Networking EXperiments and Technologies (CoNEXT)

### **Web Chair.**

- '21 ACM SIGCOMM
- '21 ACM Internet Measurement Conference (PAM)
- '19 ACM Internet Measurement Conference (IMC)

### **Registration Chair.**

- '18 ACM Internet Measurement Conference (IMC)

### **Reviewer.**

- '19 IEEE Transactions on Dependable and Secure Computing
- '19 IEEE/ACM Transactions on Networking
- '19 ACM Transactions on Privacy and Security
- '20 ACM Computer Communication Review
- '19 ACM Computer Communication Review
- '16 ACM Computer Communication Review

### Session Chairs.

- '20 Annual Computer Security Applications Conference (ACSAC)
- '19 Internet Measurement Conference (IMC)

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## Talks

- 12/09/2019 Workshop on Internet Economics: Knowledge of Internet Structure: Measurement, Epistemology, and Technology (WIE-KISMET) at CAIDA
- 10/23/2019 ACM Internet Measurement Conference (IMC)
- 10/04/2019 RIT Industrial Advisory Board (IAB) Meeting
- 08/08/2019 Office of Naval Research (ONR)
- 07/23/2019 Internet Engineering Task Force (IETF) 105
- 01/07/2019 Korea Advanced Institute of Science and Technology (KAIST)
- 12/27/2018 Sungkyunkwan University (SKKU)
- 11/16/2018 GCCIS PhD Colloquium Series at Rochester Institute of Technology (RIT)
- 11/05/2018 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)
- 11/01/2018 ACM Internet Measurement Conference (IMC)
- 09/14/2018 Great Lakes Security Day (GLSD)
- 06/29/2018 Sonos at Boston
- 05/30/2018 Graduate School of Information Security at Korea University
- 03/21/2018 Department of Computer Science and Engineering at Washington University in St. Louis (WUSTL)
- 02/28/2018 Department of Computer Science at Rochester Institute of Technology (RIT)
- 11/02/2017 ACM Internet Measurement Conference (IMC)
- 09/29/2017 New England Security Day (NESD)
- 09/08/2017 Research Conference on Communications, Information and Internet Policy (TPRC)
- 08/18/2017 USENIX Security
- 11/16/2016 ACM Internet Measurement Conference (IMC)
- 11/15/2016 ACM Internet Measurement Conference (IMC)
- 10/07/2016 New England Networking and Systems Day (NENS)
- 12/29/2014 Korea Advanced Institute of Science and Technology (KAIST)
- 04/10/2014 World Wide Web Conference (WWW)
- 05/22/2013 IFIP Networking
- 12/07/2011 IEEE GLOBECOM

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## References

**Alan Mislove (amislove@ccs.neu.edu)**

Associate Professor of Computer Science, Northeastern University, USA

**David Choffnes (choffnes@ccs.neu.edu)**

Associate Professor of Computer Science, Northeastern University, USA

**Bruce M. Maggs (bmm@cs.cmu.edu)**

Professor of Computer Science, Duke University and Vice President of Research, Akamai Technologies, USA

**Christo Wilson (c.wilson@ccs.neu.edu)**

Associate Professor of Computer Science, Northeastern University, USA

**Dave Levin (dml@cs.umd.edu)**

Assistant Professor of Computer Science, University of Maryland, USA

**Ted “Taekyoung” Kwon (tkkwon@snu.ac.kr)**

Professor, School of Computer Science & Engineering, Seoul National University, South Korea