

Byungkwon Choi

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RESEARCH INTERESTS High Performance Networked Systems, Middlebox Applications that Perform Deep Packet Inspection, Network Function Virtualization, and Mobile Application Acceleration

EDUCATION **Korea Advanced Institute of Science and Technology (KAIST)** MAR. 2016 ~ Present
Ph.D., in School of Electrical Engineering (Advisor: Prof. Dongsu Han)

Korea Advanced Institute of Science and Technology (KAIST) MAR. 2014 ~ FEB. 2016
M.S., in School of Electrical Engineering (Advisor: Prof. Dongsu Han)

Inha University FEB. 2007 ~ FEB. 2014
B.S., in School of Information and Communication Engineering (Ranked first out of 179)

PUBLICATIONS **Conference**

1. **Byungkwon Choi**, Jeongmin Kim, Daeyang Cho, Seongmin Kim, Dongsu Han. “APPx: An Automated App Acceleration Framework for Low Latency Mobile App”. *In Proceedings of the 14th International Conference on emerging Networking EXperiments and Technologies (CoNEXT), Heraklion/Crete, Greece, December 2018. (Acceptance rate: 17.3%)*
2. Jeongmin Kim, Hyunwoo Choi, Hun Namkung, Woohyun Choi, **Byungkwon Choi**, Hyunwook Hong, Yongdae Kim, Jonghyup Lee, Dongsu Han. “Enabling Automatic Protocol Behavior Analysis for Android Applications”. *In Proceedings of the 12th International Conference on emerging Networking EXperiments and Technologies (CoNEXT), Irvine, California, December 2016. (Acceptance rate: 18.4%)*
3. **Byungkwon Choi**, JongWook Chae, Muhammad Jamshed, KyoungSoo Park, and Dongsu Han. “DFC: Accelerating String Pattern Matching for Network Applications”. *In Proceedings of the 13th USENIX Symposium on Networked Systems Design and Implementation (NSDI'16), Santa Clara, CA, March 2016. (Acceptance rate: 19.7%)*
4. Jaehyun Nam, Muhammad Jamshed, **Byungkwon Choi**, Dongsu Han, and KyoungSoo Park. “Haetae: Scaling the Performance of Network Intrusion Detection with Many-core Processors”. *In Proceedings of the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID'15), Kyoto, Japan, November 2015. (Acceptance rate: 23.5%)*

Poster

1. **Byungkwon Choi**, Jeongmin Kim, Dongsu Han. “Application-specific Acceleration Framework for Mobile Applications”. *In Proceedings of the 2016 ACM Conference on Special Interest Group on Data Communication (SIGCOMM) - Poster, Florianopolis, Brazil, Aug 2016.*
2. Jaehyun Nam, Muhammad Jamshed, **Byungkwon Choi**, Dongsu Han, and KyoungSoo Park. “Scaling the Performance of Network Intrusion Detection with Many-core Processors”. *In Proceedings of IEEE/ACM Symposium on Architecture for Networking and Communications (ANCS) - Poster, Oakland, CA, May 2015.*

HONORS AND AWARDS	<p>Global PhD Fellowship (\$20,000 funding per year for 3 years) Rep. of Korea, 2017</p> <ul style="list-style-type: none"> Supported by the National Research Foundation of Korea <p>Nomination award for 2016 MSRA(Microsoft Research Asia) Fellowship Beijing, China, 2016</p> <p>Silver prize for 22nd Samsung HumanTech Paper Award Rep. of Korea, 2016</p> <p>Travel Grant for the 13th USENIX NSDI Santa Clara, CA, 2016</p> <p>Qualcomm IT Tour (One of 30 selected students in South Korea) San Diego, CA, 2013</p> <p>Gold prize for SMART Design Camp Rep. of Korea, 2012</p> <ul style="list-style-type: none"> Supported by the Korea Institute for Advancement of Technology (KIAT)
RESEARCH PROJECTS	<p>Automation of Generating Mobile App-Specific Acceleration Proxy MARCH 2016 ~ (present) Develop a framework generating app-specific acceleration proxy by using static taint analysis</p> <p>Automatic Protocol Behavior Analysis for Android Applications MARCH 2016 ~ (present) Develop a system to offer an automatic/comprehensive analysis of protocol behaviors for Android apps</p> <p>High Performance Pattern Matching for NFV Applications APRIL 2014 ~ MARCH 2016 Developed a filter-based string pattern matching for software DPI applications</p> <p>Manycore-based IDS/IPS Technology OCTOBER 2013 ~ APRIL 2014 Developed a high performance network intrusion detection systems using many-core processors</p>
SOFTWARE PUBLISHED	<p>DFC: High-speed string pattern matching library (https://github.com/nfsp3k/DFC)</p>
REVIEWER EXPERIENCE	<p><i>ACM Special Interest Group on Data Communication (SIGCOMM) 2017 Posters and Demos</i></p>
TEACHING EXPERIENCE	<p>Operating Systems and System Programming for Electrical Engineering (EE415) SPRING 2016 <i>KAIST</i></p> <ul style="list-style-type: none"> Instructor: Prof. Dongsu Han Course Description: The course provides students with the knowledge and skills necessary to build the foundation in system programming for Electrical Engineering. Role: Teaching assistant. Explaining course works to students, grading exams, quizzes, and course works, and answering questions from students.
COURSES	<p><i>Advanced Computer Networking and Cloud Computing (EE817)</i> AUTUMN 2016</p> <p><i>Embedded Software (EE516)</i> AUTUMN 2015</p> <p><i>Computer Architecture (CS510)</i> SPRING 2015</p> <p><i>Operating Systems and System Programming for Electrical Engineering (EE415)</i> SPRING 2015</p> <p><i>Software-defined Networked Computing (EE807)</i> AUTUMN 2014</p> <p><i>Theory of Hacking (EE515)</i> AUTUMN 2014</p> <p><i>Network Security (IS539)</i> SPRING 2014</p>
PROFICIENT SKILLS	<p>Programming Languages: C, C#, Java, Python, UNIX shell scripting, Latex</p> <p>Languages: Korean (native), English</p>