DUC BUI

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EDUCATION

The University of Michigan, Ann Arbor, MI **2017 – present**
- PhD student

Korea Advanced Institute of Science and Technology (KAIST), South Korea **2011 – 2013**
- MSc in Computer Science · Outstanding Master's Thesis Award · GPA 4.0/4.3 (96.7/100)

Hanoi University of Science and Technology, Vietnam **2005 – 2010**
- BSc in Computer Science · GPA 8.5/10, ranked in top 1% of CS Department

EXPERIENCE

Google, Mountain View, CA *Software Engineering Intern* **May – Aug 2017**
- *Performance metrics for Chrome web browser*: Added congestion tracking metrics to Chrome which quantify page load time and responsiveness of foreground tabs when the browser loads multiple tabs simultaneously. The metrics are used in production to direct optimization efforts to improve user experience when loading many tabs. Made 16 changes with 3500+ lines of code into Chrome. [C++]
- *Power consumption estimation from CPU usage*: Investigated the correlation between Chrome's CPU usages with the power consumption to estimate the power consumption of devices in the wild. [Python, Javascript]

Cyber-Physical Systems Lab, KAIST *Graduate Student* **2012 – 2017**
- Studied energy efficiency and wireless networking of mobile systems, advisor: Professor Insik Shin.
- *Energy-efficient mobile web browsing*: Reduced the whole-system energy consumption of mobile Google Chrome web browser by 24.4% with no perceivable impact on page load time. [C++]
- *Energy-efficient multi-link real-time streaming*: Provided QoS for high-bitrate video streaming by simultaneously using multiple wireless network interfaces (WiFi & LTE) on smartphones. [C, Java]

Samsung Electronics, Suwon, Korea *Research Intern* **May – Sep 2015**
- *Transparent cross-device resource sharing*: Improved 6X camera preview frame rate and reduced 4X photo capture time across two smartphones, compared to the state of the art (Rio, MobiSys 2014), by using more efficient real-time streaming protocols; developed Unified Resource Management Framework with 11,000+ lines of C/C++ code that manages resources (camera, sensors, and apps) across multiple heterogeneous-platform mobile devices. [C, C++, CMake, Tizen OS]

Microsoft Research, Beijing, China *Research Intern* **Jan – Jun 2014**
- *Energy-efficient mobile web browsing*: Analyzed inefficiencies, developed energy-saving techniques, and implemented profiling tools for Chrome and Firefox web browsers on Android. [C++, Python, Bash, C# .NET]

Software Testing and Verification Group, KAIST *Graduate Student* **2010 – 2012**
- *Real-world binary program analysis*: Created a dynamic symbolic execution engine based on Bitblaze analysis platform to systematically explore execution paths of real-world binary executables on Windows. [OCaml, C]
- *Software fault localization*: Developed automatic identification of buggy lines in program source code by correlating the executed lines and test case results. [C]

PUBLICATIONS

1. **Rethinking Energy-Performance Trade-Off in Mobile Web Page Loading** cps.kaist.ac.kr/eBrowser
   - *Duc Hoang Bui*, Yunxin Liu, Hyosu Kim, Insik Shin, and Feng Zhao
   - *ACM Int. Conf. on Mobile Computing and Networking* (MobiCom) 2015 **18%** acceptance rate
     - The first full paper from a university in South Korea accepted to the conference series
     - Open source code on github: energy_efficient_web_page_loading and browser_profiler
2. **GreenBag: Energy-efficient Bandwidth Aggregation for Real-time Streaming in Heterogeneous Mobile Wireless Networks** cps.kaist.ac.kr/greenbag
   - *Duc Hoang Bui*, Kilho Lee, Sangeun Oh, Insik Shin, Hyojeong Shin, Honguk Woo, and Daehyun Ban
   - *IEEE Real-Time Systems Symposium* (RTSS) 2013 **22%** acceptance rate
3. **Rethinking Energy-Performance Trade-Off in Mobile Web Page Loading**
   - *Duc Hoang Bui*, Yunxin Liu, Hyosu Kim, Insik Shin, and Feng Zhao
   - *ACM SIGMOBILE GetMobile: Mobile Computing and Communications*, Volume 20, Issue 2, April 2016

4. **Demo: Mobile Plus: Mobile platform for Transparent Sharing of Functionalities Across Devices**
   - Sangeun Oh, Hyuck Yoo, Daelyong Jeong, Sooyoung Park, *Duc Hoang Bui*, Sungsoo Moon, and Insik Shin
   - *ACM Int. Conf. on Mobile Systems, Applications and Services* (MobiSys) 2016
5. **A Case Study of the Application of Dynamic Symbolic Execution to Real-World Binary Programs**
   - *Duc Hoang Bui*, Yunho Kim, and Moonzoo Kim
   - *Korea Conference on Software Engineering* (KCSE) 2012
6. **A method of verifying web service composition**
   - Thang Quyet Huynh, Quynh Thi Pham, and *Duc Hoang Bui*
   - *ACM International Symposium on Information and Communication Technology* (SoICT) 2010

HONORS AND AWARDS

2016 **Naver Ph.D. Fellowship** by Naver Corp. (the largest search engine in Korea) for excellent Ph.D. students
2015 **Qualcomm Innovation Award** finalist, ranked in top ten out of 37 final-round projects
2015 **Microsoft Research Asia Fellowship Nomination Award**, ranked 14/90 students in top Asia universities
2015 **ACM SIGMOBILE Travel Grant** for the MobiCom 2015 conference
2014 **Microsoft Research Asia Excellent Award** in the Stars of Tomorrow Internship Program
2014 **Outstanding Master's Thesis Award** by Computer Science Department, KAIST
2010 **Korean Government Scholarship** for 1-year Korean language training and a 2-year master's program
2009 **Scholarship for Outstanding Students** by Vietnam Ministry of Information and Communications