DUC BUI

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My research applies natural language processing/machine learning to build automated analysis and question-answering systems for online privacy policies. I previously worked on the Chrome web browser and mobile networks for 5 years.

EDUCATION

The University of Michigan, Ann Arbor, MI **2017 – present**
- PhD student · Advisor: Professor Kang Shin

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

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

INDUSTRIAL 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]

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]

RESEARCH PROJECTS

1. **Assisting Automated Comprehension of Privacy Policies**
   - ***Duc Bui*** and Kang Shin **PhD Preliminary Exam project**, Sep 2018
   - The first ML-based fully automated extraction of personal information types from privacy policy documents with neural-network-based text classification and entity recognition [PyTorch, TensorFlow, Python]
   - Automatically extract information at a finer-grained level and higher accuracy than state of the art solutions.
2. **Rethinking Energy-Performance Trade-Off in Mobile Web Page Loading** cps.kaist.ac.kr/eBrowser
   - ***Duc Bui***, Yunxin Liu, Hyosu Kim, Insik Shin, and Feng Zhao
   - *ACM Int. Conf. on Mobile Computing and Networking* (**MobiCom**), 2015 **18%** acceptance rate
   - *ACM SIGMOBILE GetMobile Magazine (research highlights), 2016*
   - *GitHub open source*: energy_efficient_web_page_loading and browser_profiler
   - *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++]
3. **GreenBag: Energy-efficient Bandwidth Aggregation for Real-time Streaming in Heterogeneous Mobile Wireless Networks** cps.kaist.ac.kr/greenbag
   - ***Duc Bui***, Kilho Lee, Sangeun Oh, Insik Shin, Hyojeong Shin, Honguk Woo, and Daehyun Ban
   - *IEEE Real-Time Systems Symposium* (**RTSS**), 2013 **22%** acceptance rate
   - *GitHub open source*: greenbag project
   - *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]
4. **Cross-Platform Support for Rapid Development of Mobile Acoustic Sensing Applications**
   - *Yu-Chih Tung, **Duc Bui** and Kang Shin*
   - *ACM Int. Conf. on Mobile Systems, Applications and Services* (**MobiSys**), 2018
5. **Mobile Plus: Mobile platform for Transparent Sharing of Functionalities Across Devices**
   - Sangeun Oh, Hyuck Yoo, Daelyong Jeong, Sooyoung Park, ***Duc Bui***, Sungsoo Moon, and Insik Shin
   - *ACM Int. Conf. on Mobile Systems, Applications and Services* (**MobiSys**), 2017