

Heejin Park

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RESEARCH INTERESTS

Primary interests: System software for its security and efficiency
Recent focus: System supports for trustworthy on-device computation including stream analytics and ML

QUALIFICATION SUMMARY

- Minimizing complex GPU stack for mobile/embedded GPU-accelerated ML workloads via record and replay
- Developing a secure stream analytics engine at the ARM-based edge platform with TrustZone
- 3 years research experiences on modern stream analytics with Apache Spark and Flink
- Extending the lifespan of flash-based SSDs by modeling and improving its data retention period

EDUCATION

Ph.D. Candidate in Computer Engineering, Purdue University Advisor: Felix Xiaozhu Lin	Aug. 2016 – May. 2022 (expected)
M.S. in Computer Science, University of Seoul Advisor: Donghee Lee	Aug. 2013 - Aug. 2015
B.S. in Computer Science and Engineering, University of Seoul	Mar. 2008 – Aug. 2013

EXPERIENCE

Software Engineer Intern, Samsung Electronics Project: Zoned Namespace (ZNS) SSDs	May. 2020 – Aug. 2020
Teaching Assistant, Purdue University ECE469: Operating System Engineering	Jan. 2020, 2021– May. 2020, 2021
Research Assistant, University of Seoul Project: Storage Software Optimization for Solid State Drive (SSD)	Aug. 2013 – Aug. 2015

CONFERENCE PROCEEDINGS

- [1] [Heejin Park](#), and Felix Xiaozhu Lin, “TinyStack: A minimal GPU stack for client ML,” will appear in *International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2022.
 - [2] [Heejin Park](#), Shuang Zhai, Long Lu, and Felix Xiaozhu Lin, “StreamBox-TZ: Secure Stream Analytics at the Edge with Trust Zone,” in *Proc. USENIX Annual Technical Conference (ATC)*, 2019.
 - [3] Hongyu Miao, [Heejin Park](#), Myeongjae Jeon, Gennady Pekhimenko, Kathryn S. McKinley, and Felix Xiaozhu Lin, “StreamBox: Modern Stream Processing on a Multicore Machine,” in *Proc. USENIX Annual Technical Conference (ATC)*, 2017.
 - [4] [Heejin Park](#), Jaeho Kim, Jongmoo Choi, Donghee Lee, and Sam H. Noh, “Incremental Redundancy to Reduce Data Retention Errors in Flash-based SSDs,” In *Proc. IEEE International Conference on Massive Storage Systems and Technologies (MSST)*, 2015.
 - [5] [Heejin Park](#), Jaeho Kim, and Donghee Lee, “Analysis of Incremental Redundancy for Data Retention Error of SSDs,” *Poster at the 11th USENIX Symposium on Operating Systems Design and Implementation (OSDI Poster)*, 2014.
- *[Under review] [Heejin Park](#), and Felix Xiaozhu Lin, “Safe and Practical GPU Acceleration in TrustZone,” in ([arXiv: 2111.03065](https://arxiv.org/abs/2111.03065))

ACADEMIC SERVICES

- Reviewer, IEEE Transactions on Cloud, 2021
- Artifact Evaluation Committee Member, SOSP, 2021

PATENTS

- [1] Jaeho Kim, [Heejin Park](#), and Sam H. Noh, “Computing Method and Apparatus for Correcting and Detecting of Error” , Korea Patent No. 10-1609509, 2016
- [2] [Heejin Park](#), Jaeho Kim, and Donghee Lee , “Storage System Based on NAND Flash and Data Retention Improving Method”, Korea Patent No. 10-1653999, 2016

HONORS AND AWARDS

- USENIX Student Awards: FAST 2014; OSDI 2014; ATC 2017, 2019
- Combined BA/MA Degree Scholarship 2013, 2014
- Financial Aid Scholarship 2012, 2013
- Honorable mention of ACM-ICPC Asia Regional – Daejeon 2012
- National Grant Type I & II 2012