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| Contact Information | <p>School of Computing KAIST Mobile: +82-10-2999-6177 (+1-404-316-8506) 291 Daehak-ro, Yuseong-gu Daejeon, South Korea, 34141</p> <p>E-mail: jongse@kaist.ac.kr URL: https://jongse-park.github.io</p> |
| Research Interests | Computer architecture, hardware acceleration, machine learning, distributed systems, approximate computing technologies. |
| Employment | <p>Assistant Professor. KAIST Dec. 2019–date Product Engineer. Bigstream Solutions Inc. Jun. 2018–Nov. 2019</p> |
| Education | <p>Ph.D. in Computer Science. Georgia Institute of Technology Aug. 2013–Aug. 2018</p> <ul style="list-style-type: none"> • Advisor: Dr. Hadi Esmaeilzadeh • Dissertation: <i>Breaking the Abstractions for Productivity and Performance in the Era of Specialization</i> <p>M.S. in Computer Science. KAIST Feb. 2012</p> <ul style="list-style-type: none"> • Advisor: Dr. Seungryoul Maeng • Thesis: <i>Dynamic Resource Reconfiguration on the Cloud for Improving Data Locality</i> • GPA: 3.71/4.30 (93.4%) <p>B.E. in Computer Science and Engineering. Sogang University Feb. 2010</p> <ul style="list-style-type: none"> • GPA: 3.74/4.30 (93.4%) • Graduated with Honors |
| Honors and Awards | <p>Distinguished paper award. IEEE Symposium on High Performance Computer Architecture. 2016 “TABLA: A Unified Template-Based Framework for Accelerating Statistical Machine Learning”</p> <p>Honorable Mention in IEEE Micro Top Picks from 2014 Computer Architecture Conferences. 2015 “General-Purpose Code Acceleration with Limited-Precision Analog Computation”</p> <p>Kwanjeong Foundation Scholarship, Kwanjeong Educational Foundation (KEF) 2013–2018</p> <p>National Full Scholarship, KAIST 2010–2012</p> <p>Dean’s Honored Graduate, Ranked 3rd among graduates of the class of 2010 2010</p> <p>DMC General Management Track Scholarship, Samsung Electronics Co., Ltd 2009</p> <p>Academic Scholarship, Sogang University, 7 semesters 2004–2009</p> |
| Refereed Conference Papers | <ol style="list-style-type: none"> 1. Y. Li, J. Park, M. Alian, Y. Yuan, Q. Zheng, P. Pan, R. Wang, A. Schwing, H. Esmaeilzadeh, N. Kim, “A Network-Centric Hardware/Algorithm Co-Design to Accelerate Distributed Training of Deep Neural Networks,” <i>The 50th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)</i>, October 2018. 2. H. Sharma, J. Park, B. Samynathan, B. Robatmili, S. Mirkhani, H. Esmaeilzadeh, “From Tensors to FPGAs: Accelerating Deep Learning,” <i>A Symposium on High Performance Chips (Hot Chips)</i>, August 2018. 3. H. Sharma, J. Park, N. Suda, L. Lai, B. Chau, J. Kim, V. Chandra, H. Esmaeilzadeh, “Bit Fusion: Bit-Level Dynamically Composable Architecture for Accelerating Deep Neural Networks,” <i>International Symposium on Computer Architecture (ISCA)</i>, June 2018. 4. J. Park, H. Sharma, D. Mahajan, J. Kim, P. Olds, H. Esmaeilzadeh, “Scale-Out Acceleration for Machine Learning,” in <i>The 50th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)</i>, October 2017. |

5. **J. Park**, E. Amaro, D. Mahajan, B. Thwaites, H. Esmaeilzadeh, "AXGAMES: Towards Crowdsourcing Quality Target Determination in Approximate Computing," in *International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, April 2016.
6. H. Sharma, **J. Park**, D. Mahajan, E. Amaro, J. Kim, C. Shao, A. Mishra, H. Esmaeilzadeh "From High-Level Deep Neural Models to FPGAs," in *The 49th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)*, October 2016.
7. D. Mahajan, **J. Park**, E. Amaro, H. Sharma, A. Yazdanbakhsh, J. Kim, H. Esmaeilzadeh, "TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning," in *The 22nd IEEE Symposium on High Performance Computer Architecture (HPCA)*, March 2016.
(Distinguished Paper Award)
8. D. Mahajan, A. Yazdanbakhsh, **J. Park**, B. Thwaites, H. Esmaeilzadeh, "Towards Statistical Guarantees in Controlling Quality Tradeoffs in Approximate Acceleration," in *International Symposium on Computer Architecture (ISCA)*, June 2016.
9. A. Yazdanbakhsh, **J. Park**, H. Sharma, P. Lotfi-Kamran, H. Esmaeilzadeh, "Neural Acceleration for GPU Throughput Processors," in *The 48th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)*, December 2015.
10. **J. Park**, H. Esmaeilzadeh, X. Zhang, M. Naik, W. Harris, "FLEXJAVA: Language Support for Safe and Modular Approximate Programming," in *The 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE)*, September 2015.
11. A. Yazdanbakhsh, D. Mahajan, B. Thwaites, **J. Park**, A. Nagendrakumar, S. Sethuraman, K. Ramkrishnan, N. Ravindran, R. Jariwala, A. Rahimi, H. Esmaeilzadeh, K. Bazargan, "AXILOG: Language Support for Approximate Hardware Design," in *Design Automation and Test in Europe (DATE)*, March 2015.
12. R. S. Amant, A. Yazdanbakhsh, **J. Park**, B. Thwaites, H. Esmaeilzadeh, A. Hassibi, L. Ceze, D. Burger, "General-Purpose Code Acceleration with Limited-Precision Analog Computation," in *The 41th International Symposium on Computer Architecture (ISCA)*, June 2014.
(Nominated for CACM Research Highlights; Honorable Mention in IEEE Micro Top Picks)
13. B. Thwaites, G. Pekhimenko, A. Yazdanbakhsh, **J. Park**, G. Mururu, H. Esmaeilzadeh, O. Mutlu, T. Mowry, "Rollback-Free Value Prediction with Approximate Loads," in *The 24th International Conference on Parallel Architectures and Compilation Techniques (PACT)*, August 2014.
14. J. Choi, **J. Park**, J. Seol, and S. Maeng, "Isolated Mini-domain for Trusted Cloud Computing," in *The 13th International Symposium on Cluster, Cloud, and Grid Computing (CCGrid)*, May 2013.
15. **J. Park**, D. Lee, B. Kim, J. Huh, S. Maeng, "Locality-aware Dynamic VM Reconfiguration on MapReduce Clouds," in *The 21st International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC)*, June 2012.

Refereed Journal Articles

1. D. Mahajan, K. Ramkrishnan, R. Jariwala, A. Yazdanbakhsh, **J. Park**, B. Thwaites, A. Nagendrakumar, A. Rahimi, H. Esmaeilzadeh, K. Bazargan, "AXILOG: Abstractions for Approximate Hardware Design and Reuse," in *IEEE Micro, special issue on Alternative Computing Designs and Technologies*, October 2015.

Refereed Workshop Papers

1. H. Sharma, **J. Park**, E. Amaro, B. Thwaites, P. Kotha, A. Gupta, J. Kim, A. Mishra, H. Esmaeilzadeh, "DNNWEAVER: From High-Level Deep Network Models to FPGA Acceleration," in *The Second Workshop on Cognitive Architectures (CogArch) in conjunction with ASPLOS*, April 2016.
2. D. Mahajan, A. Yazdanbakhsh, **J. Park**, B. Thwaites, H. Esmaeilzadeh, "Prediction-Based Quality Control for Approximate Accelerators," in *The Second Workshop on Approximate Computing Across the System Stack (WACAS) in conjunction with ASPLOS*, March 2015.

3. **J. Park**, K. Ni, X. Zhang, H. Esmaeilzadeh, M. Naik, "Expectation-Oriented Framework for Automating Approximate Programming," in *The First Workshop on Approximate Computing Across the System Stack (WACAS) in conjunction with ASPLOS*, March 2014.
4. A. Yazdanbakhsh, B. Thwaites, **J. Park**, H. Esmaeilzadeh, "Methodical Approximate Hardware Design and Reuse," in *The First Workshop on Approximate Computing Across the System Stack (WACAS) in conjunction with ASPLOS*, March 2014.
5. A. Yazdanbakhsh, R. Amant, B. Thwaites, **J. Park**, H. Esmaeilzadeh, A. Hassibi, L. Ceze, D. Burger, "Toward General-Purpose Code Acceleration with Analog Computation," in *The First Workshop on Approximate Computing Across the System Stack (WACAS) in conjunction with ASPLOS*, March 2014.
6. B. Thwaites, A. Yazdanbakhsh, **J. Park**, H. Esmaeilzadeh, "Bio-Accelerators: Bridging Biology and Silicon for General-Purpose Computing," in *Wild and Crazy Ideas (WACI) in conjunction with ASPLOS*, March 2014.

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| Research Experience | Research Assistant. Alternative Computing Technology (ACT) Lab <ul style="list-style-type: none"> Georgia Institute of Technology Advisor: Dr. Hadi Esmaeilzadeh | Aug. 2013–Aug. 2018 |
| | Visiting Researcher. Alternative Computing Technology (ACT) Lab <ul style="list-style-type: none"> University of California, San Diego Advisor: Dr. Hadi Esmaeilzadeh | Jan. 2018–Aug. 2018 |
| | Research Intern. Architecture Research Group (ARG) <ul style="list-style-type: none"> NVIDIA Research Mentors: Dr. Arslan Zulfiqar and Dr. Eiman Ebrahimi Manager: Dr. Steve Keckler | May 2017–Aug. 2017 |
| | Research Intern. Catapult team <ul style="list-style-type: none"> Microsoft Research Mentor: Dr. Eric Chung Manager: Dr. Doug Burger | Jan. 2016–May 2016 |
| | Research Assistant. Computer Architecture (CA) Lab <ul style="list-style-type: none"> Korea Advanced Institute of Science and Technology (KAIST) Advisor: Dr. Seungryoul Maeng | Feb. 2010–Jul. 2013 |
| Teaching Experience | Teaching Assistant. <ul style="list-style-type: none"> CS3220: Processor Design Georgia Institute of Technology Fall 2016 CS3220: Processor Design Georgia Institute of Technology Fall 2014 CS8803: Alternative Computing Technology Georgia Institute of Technology Spring 2014 CS211: Digital System and Lab. KAIST Spring 2011 CS311: Embedded Computer Systems. KAIST Fall 2010 | |
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| Technical Skills | Programming languages: C/C++, Java, Python, CUDA, Verilog, Bash, JavaScript, HTML Development Tools: Tensorflow, Amazon EC2, Spark, Hadoop, Chord, LLVM | |
| References Available to Contact | Hadi Esmaeilzadeh. Associate Professor, UCSD <ul style="list-style-type: none"> 9500 Gilman Drive, La Jolla, CA 92093 | hadi@eng.ucsd.edu +1 (206) 658-3952 |
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