

Joon Kyung Kim

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RESEARCH INTERESTS Computer Architecture, Compilers, Operating Systems, Machine Learning

EDUCATION **Georgia Institute of Technology**, Atlanta, GA

- M.S. Computer Science
 - Expected Graduation Date: May 4th, 2018
 - Advisor: Hadi Esmaeilzadeh
 - Specialization: Computing Systems

Georgia Institute of Technology, Atlanta, GA

- B.S. Computer Science, May 2016
 - Undergraduate Research Advisor: Hadi Esmaeilzadeh

PUBLICATIONS **Conference Papers**

2017

- [3] Scale-Out Acceleration for Machine Learning
J. Park, H. Sharma, D. Mahajan, **J. Kim**, P. Olds, H. Esmaeilzadeh
Proceedings of the 50th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO), Oct 2017.

2016

- [2] From High-Level Deep Neural Models to FPGAs
H. Sharma, J. Park, D. Mahajan, E. Amaro, **J. Kim**, C. Shao, A. Mishra, H. Esmaeilzadeh
Proceedings of the 50th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO), Oct 2016.
- [1] TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning
D. Mahajan, J. Park, E. Amaro, H. Sharma, A. Yazdanbaksh, **J. Kim**, H. Esmaeilzadeh
2016 IEEE International Symposium on High Performance Computer Architecture (HPCA), Mar 2016.

Distinguished Paper Award

Technical Reports

2015

- [1] TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning
D. Mahajan, J. Park, E. Amaro, H. Sharma, A. Yazdanbaksh, **J. Kim**, H. Esmaeilzadeh
SMARTech, SCS Technical Report, GT-CS-15-07

RESEARCH EXPERIENCE **Alternative Computing Technologies Lab at Georgia Tech**, Atlanta, GA

- Research Assistant May 2015 – Present
 - TABLA Project: FPGA accelerator generator for statistical machine learning algorithms
 - Developed a compiler for our domain-specific language to express gradient descent algorithms used in machine learning.
 - Compiler generates a dataflow graph, static execution schedule, and executable binary.
 - Paper won the Distinguished Paper Award at HPCA 2016
 - Project website: <http://act-lab.org/artifacts/tabla>
 - Project Source Repository: <https://bitbucket.org/act-lab/tabla/>

INDUSTRY EXPERIENCE

Amazon Web Services, Seattle, WA

- Software Development Engineer Intern May 2017 – Jul 2017
- Team: AWS Aurora Postgres
- Mentor: Arun Sudhir, Manager: Ashutosh Galande
 - Designed and implemented the client authentication mechanism for AWS Aurora Postgres and RDS Postgres customers by integrating the AWS IAM (Identity and Authentication Management) authentication service
 - Highest demand feature by AWS Aurora Postgres and AWS RDS Postgres customers

- Received a return offer for full time software development engineer

Dell SecureWorks, Atlanta, GA

- Software Developer Co-op Aug 2013 – Dec 2013, May 2014 – Aug 2014, Jan 2015 – May 2015
 - Developed the customer web portal system
 - Developed a company internal tool for visualizing server performance metrics

**TEACHING
EXPERIENCE**

Georgia Tech College of Computing, Atlanta, GA

- Graduate Teaching Assistant Aug 2017 – Present
 - Course: Design and Analysis of Algorithms (CS 3510)
 - Instructor: Richard Peng
 - Led voluntary recitation sessions to cover pre-requisite materials needed to succeed in the course
 - Held office hours to answer questions, graded homeworks and tests

Georgia Tech College of Computing, Atlanta, GA

- Graduate Teaching Assistant Jan 2017 – May 2017
 - Course: Design and Analysis of Algorithms (CS 3510)
 - Instructor: Merrick Furst
 - Led seven other TAs as the Head TA to design the course logistics, with a strong emphasis on evaluating students' performance based on their level of understanding.
 - Held office hours, answered questions online, graded homeworks and tests, and held review sessions.
 - Received very positive reviews from students

Georgia Tech College of Computing, Atlanta, GA

- Graduate Teaching Assistant Aug 2016 – Dec 2016
 - Course: Design and Analysis of Algorithms (CS 3510)
 - Instructor: Richard Peng
 - Held office hours, created homework and test problems

Georgia Tech Center for Academic Success, Atlanta, GA

- Peer-Led Undergraduate Study (PLUS) Leader Aug 2012 – May 2013
 - Led tutoring sessions for undergraduate students enrolled in the Calculus 2 (Linear Algebra) course at Georgia Tech
 - 2012 Outstanding PLUS Leader Award Recipient

SKILLS

Programming Languages

- C, C++, Python, Java, Bash, \LaTeX

Frameworks

- LLVM

**AWARDS &
SCHOLARSHIPS**

Georgia Tech President's Undergraduate Research Award Aug 2015

- Received a salary award (\$1,500) to work on the TABLA project

Georgia Tech Center for Academic Success Outstanding PLUS Leader Award Dec 2012

- The most honorable award given to the PLUS (Peer Led Undergraduate Studies) Leader

William Orr Dingwall Foundation Aug 2011

- 2011 Korean Ancestry Grant Scholarship Recipient