Joon Kyung Kim

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RESEARCH INTERESTS

Computer Architecture • Compiler Optimizations • Operating Systems • Machine Learning

EDUCATION

University of California, San Diego
Ph.D. in Computer Science | Expected May 2023
Advisor | Dr. Hadi Esmaeilzadeh

Georgia Institute of Technology
M.S. in Computer Science | May 2018
Area | Computing Systems
Advisor | Dr. Hadi Esmaeilzadeh

Georgia Institute of Technology
B.S. in Computer Science | May 2016
Advisor | Dr. Hadi Esmaeilzadeh

HONORS AND AWARDS

Distinguished Paper Award in IEEE Symposium on High Performance Computer Architecture | 2016
"TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning"

Georgia Tech President's Undergraduate Research Award | 2015
Received a salary award ($1,500) for the TABLA project

William Orr Dingwall Foundation | 2011
2011 Korean Ancestry Grant Scholarship Recipient

PUBLICATIONS

Conference Papers

2018

[P4] D. Mahajan, **J. Kim**, J. Sacks, A. Ardalan, A. Kumar, H. Esmaeilzadeh, "In-RDBMS Hardware Acceleration of Advanced Analytics" 44^{th} International Conference on Very Large Data Bases (VLDB), September 2018.

2017

[P3] J. Park, H. Sharma, D. Mahajan, **J. Kim**, P. Olds, and H. Esmaeilzadeh, "Scale-Out Acceleration for Machine Learning" 50^{th} International Symposium on Microarchitecture (MICRO), October 2017.

2016

[P2] H. Sharma, J. Park, D. Mahajan, E. Amaro, **J. Kim**, C. Shao, and H. Esmaeilzadeh, "From High-Level Deep Neural Models to FPGAs" 49^{th} International Symposium on Microarchitecture (MICRO), October 2016.

[P1] D. Mahajan, J. Park, E. Amaro, H. Sharma, A. Yazdanbakhsh, **J. Kim**, and H. Esmaeilzadeh, "TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning," 22^{nd} IEEE Symposium on High Performance Computer Architecture (HPCA), March 2016. (Distinguished Paper Award)

Technical Reports

[TR1] D. Mahajan, J. Park, E. Amaro, H. Sharma, A. Yazdanbakhsh, **J. Kim**, and H. Esmaeilzadeh, **"TABLA: A Unified Template-based Framework for Accelerating Statistical Machine Learning,"** SMARTech, SCS Technical Report, GT-CS-15-07.

PROFESSIONAL EXPERIENCE

AMAZON.COM | SOFTWARE DEVELOPMENT ENGINEER INTERN
SUMMER 2018 | SEATTLE, WA
TEAM: ALEXA SMART HOME SPACES
MENTOR: Brent Rood • MANAGER: Deepthi Prasad

- Developed a web service to support efficient data storage and retrieval for a new Alexa Smart Home Spaces feature.

AMAZON WEB SERVICES | SOFTWARE DEVELOPMENT ENGINEER INTERN
SUMMER 2017 | SEATTLE, WA
TEAM: AWS AURORA POSTGRES
MENTOR: Arun Sudhir • MANAGER: Ashutosh Galande

- Designed and implemented a client authentication mechanism for AWS Aurora Postgres and RDS Postgres customers by integrating the AWS IAM (Identity and Authentication Management) service.

DELL SECUREWORKS | SOFTWARE DEVELOPER CO-OP
SPRING 2015, SUMMER 2014, FALL 2013 | ATLANTA, GA
TEAM: CUSTOMER PORTAL TEAM
MENTOR: Veera Rayala • MANAGER: Chris Phillips

- Developed a customer web portal system and a company internal tool for visualizing server performance metrics.

TEACHING EXPERIENCE

- **Teaching Assistant**
  Course | Principles of Computer Architecture (CSE 240A)
  Instructor | Dr. Hadi Esmaeilzadeh
  Location | University of California, San Diego
  Semester | Fall 2018
- **Teaching Assistant**
  Course | Advanced Compiler Optimizations (CS 6241)
  Instructor | Dr. Santosh Pande
  Location | Georgia Institute of Technology
  Semester | Spring 2018
- **Teaching Assistant**
  Course | Design and Analysis of Algorithms (CS 3510)
  Instructor | Dr. Richard Peng
  Location | Georgia Institute of Technology
  Semester | Fall 2017
- **Head Teaching Assistant**
  Course | Design and Analysis of Algorithms (CS 3510)
  Instructor | Dr. Merrick Furst
  Location | Georgia Institute of Technology

Semester | Spring 2017

- **Teaching Assistant**

  Course | Design and Analysis of Algorithms (CS 3510)
  Instructor | Dr. Richard Peng
  Location | Georgia Institute of Technology
  Semester | Fall 2016

SKILLS

PROGRAMMING LANGUAGES

- C, C++, Python, Java, Bash

FRAMEWORKS

- LLVM

ARTIFACTS

- TABLA: An accelerator generator for statistical machine learning algorithms | http://act-lab.org/artifacts/tabla
- DNNWEAVER: Framework for accelerating Deep Neural Networks | http://act-lab.org/artifacts/dnnweaver