Junghyun Kim (Eugene)

Software Engineer
Bellevue, WA

About Me

- A Software Engineer at Google who is passionate about technology and its impact to the real world.
- Experienced in problem-solving and Object-Oriented Programming.
- Learn and apply new technologies quickly; Work well in a team or on an individual basis.
- **Language & OS: C/C++, JAVA, PYTHON, PHP, Dart, HTML, JAVASCRIPT, SQL, Windows, MacOS, Linux**
- **Skills**: Parallel Computing (Multi-threading, OPENMP), Distributing Computing (MapReduce), Machine Learning (Tensorflow, Scikit-Learn), Data Science (Pandas, Numpy)

Education

Georgia Institute of Technology — *Atlanta, GA*

M.S. in Computer Science · Machine Learning — *Jan.8th.2018-Dec.15th.2018*

Relevant Coursework: CS 6220 (High Performance Computing), CS 7545 (Machine Learning Theory), CS 7643 (Deep Learning), CS 7646 (Machine Learning For Trading), CS 8803 (Special Topics: Foundations of Fairness of Machine Learning)

Georgia Institute of Technology — *Atlanta, GA*

B.S. in Computer Science · Theory, Intelligence — *Aug.17th.2015-Dec.16th.2017*

Relevant Coursework: CS 4641 (Machine Learning), CS 4731 (Game AI), CS 4510 (Automata and Complexity), CS 4540 (Advanced Algorithm), CS 3510 (Design and Analysis Algorithms), CS 3600 (Artificial Intelligence), MATH 4261 (Math Statistics I), MATH 3215 (Probability & Statistics), MATH 4640 (Numerical Analysis I)

Experience

Google · Google Ads (DoubleClick Search Team) — *Kirkland, WA*

Software Engineer · **Java** · **SQL** · **PROTO** · **BAZEL** · **Dart** — *Jan. 28th. 2019 - Current*

- Currently working in Budget Management team for Doubleclick Search.

Google · Google Ads (De-duped Reach Team) — *Venice, CA*

Software Engineering Intern · **C++** · **Python** · **SQL** · **PROTO** · **BAZEL** · **Parallel/Distributed Computing** — *May. 14th. 2018 - Aug. 3rd. 2018*

- Built pipeline for validating traffic estimation model for Adwords to estimate reach (the number of unique users who see a given advertisement) and frequency (the number of times a single user see a given advertisement) for a list of advertisements in certain period in large ads database at Google using Google's highly scalable parallel data pipeline library **FLUME**.
- Optimized the performance by merging weekly and monthly statistics and aggregating daily, weekly, and monthly statistics instead of all daily statistics based on that aggregation function is a bottleneck in the performance of the query.
- Improved performance of validation pipeline for traffic estimation for Adwords by roughly **20 times** with Google's F1 distributed database engine and statistical estimation algorithm called HyperLOGLOG++.

SAMSUNG Electronics · Security Lab — *Seoul, S.Korea*

Research Intern · **C++** · **OPENMP** — *Jun. 12th. 2017 - Aug. 11th. 2017*

- Conducted research on privacy preserving fingerprint authentication based on minutiae points with function-hiding Inner Product Encryption (IPE) to protect sensitive biometric data even when either the server or device is hacked.
- Implemented **C++** based prototype of privacy preserving fingerprint authentication protocol and tested over a large dataset and greatly improved performance by deploying CPU-based parallelism with **OpenMP**
- Paper: `https://goo.gl/JrTHuo`

Georgia Institute of Technology · HPC Garage Lab — *Atlanta, GA*

Research Assistant · **C++** · **OPENMP** — *Aug. 21st. 2017 - Dec. 15th. 2018*

- Conducted research on accelerating Tensor Factorization algorithm (which is commonly used in Machine Learning) using CPU and GPU based parallelism under Dr. Vuduc.
- Tuned parameter (block size) by finding the relationship between fill (the measure of how zero-elements are included using that block size) and operation time.
- Helped Generalizing matrix case (n = 2) code for PHIL Fill Estimation Algorithm (https://goo.gl/SjkKop) to tensor case (n > 3) and wrote a code for n = 3.

Georgia Institute of Technology · Stadium - IoPT Lab

Atlanta, GA

Research Assistant · **Python** · **PHP** · **Django** *Aug. 22nd. 2016 - Dec. 15th. 2017*

- Coordinated frequencies to avoid frequency collision during the football game at Bobby Dodd Stadium
- Collected frequency data (magnitude of the frequency ranging from 400 MHz to 1GHz) during the football game as csv (comma separated values) files.
- Merged several csv files that contain frequency data into one csv file using **Python**.
- Created an online system that can manage csv files collected during the football game and visualize them using **PHP**.
- Analzyed and Visualized the data with **Django** and **PHP** obtained from sensors in Bobby Dodd Stadium at Georgia Tech.

Georgia Institute of Technology

Atlanta, GA

Graduate Teaching Assistant *Jan. 8th. 2018 - Dec. 14th. 2018*

- CS 3510 (Design & Analysis Algorithm)
- Held weekly office hours to help students with understanding materials taught in the class.
- Graded homework and exams.
- Proctored exams.

Georgia Institute of Technology

Atlanta, GA

Undergraduate Teaching Assistant (or grader) *Jan. 11th. 2016 - Dec. 15th. 2017*

- CS 2051 (Honors Discrete Math), MATH 3012 (Applied Combinatorics), and CS 4510 (Automata and Complexity)
- Held weekly office hours to help students with understanding materials taught in the class.
- Graded homework and exams.
- Proctored exams.

Projects

Honeycomb Critique

Project Manager · **Node.js** · **HTML** · · **JAVASCRIPT** · **MYSQL** *Jun. 2016 - Jul. 2016*

- Created a web application that visualizes statistics of all classes' and instructor's grade distributions at Georgia Tech.
- Fetched course grade information from Georgia Tech IRP (Institutional Research and Planning.
- Added "filter by certain criteria" to give better understanding of grading distribution such as course number, semester, professor, the size of the class, and so forth.

Honeycomb Critique

BuzzMovie · **HTML** · **JAVA** · **PHP** · **JAVASCRIPT** · **MYSQL** *Jun. 2016 - Jul. 2016*

- Created a movie recommendation system for Georgia Tech students.
- Fetched movie information from Open Movie Database and used that information to offer a service in which users can get a recommendation from other users or recommend a film to others.

IT Factory COIN

Software Engineer and Project Manager · **C++** · **PHP** · **JAVASCRIPT** · **MYSQL** *Mar. 2014 - Dec. 2015*

- Created and managed online judge (programming assignment system similar to Hackerrank) for Korea Digital Media High School (KDMH).
- Created assignment management system for programming assignments.
- Created a badge system based on achievements to encourage student's active learning.
- IT Factory COIN has been used for assignments (C Programming) for the entire pre-freshmen since 2015(every year). Now it's used as an official online judge for C programming course at KDMH.

Withstudy

Software Engineer · **PHP** · **JAVASCRIPT** · **JAVA** · **MYSQL** *Mar. 2013 - Nov. 2013*

- Created a scheduling mobile application for high school students where they can manage study plans and extracurricular activities using **PHP** and **JAVA**.

Honors & Awards

2017	**Dean's List,** Georgia Institute of Technology (Fall 2017)	*Atlanta, GA*
2017	**Dean's List,** Georgia Institute of Technology (Spring 2017)	*Atlanta, GA*
2016	**Dean's List,** Georgia Institute of Technology (Fall 2016)	*Atlanta, GA*
2016	**Faculty Honors,** Georgia Institute of Technology (Spring 2016)	*Atlanta, GA*
2015	**Dean's List,** Georgia Institute of Technology (Fall 2015)	*Atlanta, GA*
2013	**Honorable Mention,** SK Teen App Challenge	*Seoul, S. Korea*
2011	**Silver Medal,** Korean Olympiad in Informatics	*Seoul, S. Korea*
2011	**Gold Medal,** 5th National Programming Contest	*Suwon, S. Korea*
2011	**Gold Award,** Korean Olympiad in Informatics (Seoul Regional)	*Seoul, S. Korea*