Youngmoon **Eom**

Software Engineer · Distributed Computing Engineer

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Summary and Qualifications

- Hands-on programming skills in Java, Python, C++ etc
- Technical experiences on web server, networking and application development.
- Practical application development experience on Linux and Windows-based systems.
- Practical Linux systems administration skills.
- Extra curricular software development through personal projects and web developments.
- Scripting skills using shell(Bash), Python etc.
- Presentation skills through lecture careers for years.
- Strong technical background on distributed computing, data processing, job scheduling(load balancing) and Bigdata.

Skills

Programming Languages	Java, C/C++, Python, Bash, JavaScript, JQuery, PHP, LESS(CSS) etc.
Technical Skills	System programming, Socket programming, Multithreaded/Multi-process programming, IPC, Java Swing/AWT, Scripting(Bash, Python), VIM editor etc.
Server Configuration/Maintenance	Network configuration, Account/Group/Permission management, NIS(YP), NFS, SSH, VNC, FTP, VM etc on {CentOS, Ubuntu, RHEL}.
Web Development	Django, PHP, MariaDB(MySQL), PostgreSQL, Nginx, Apache, HTML5
Languages	Korean(native language), English(conversational level)

Educations

UNIST (Ulsan National Institute of Science and Technology) — *Ulsan, S.Korea*

M.S. in Computer Engineering — *Mar. 2013 - Feb. 2015*

UNIST (Ulsan National Institute of Science and Technology) — *Ulsan, S.Korea*

B.S. in Electrical and Computer Engineering — *Mar. 2009 - Feb. 2013*

- Received Summa Cum Laude honor (Graduation with honors in Electrical and Computer Engineering)

Experiences

Lecturer & Assistant Professor — *Jun. 2015 - Present*

Dept. of Computer Science, Korea Military Academy — *Seoul, S.Korea*

- Assistant Professor. Sep. 2016 - Present
- Lecturer. Jun. 2015 - Sep. 2016
- Server administrator officer. Jan. 2017 - Present
- Administrative officer. Jan. 2016 - Dec. 2016
- Courses in charge: Introduction to Computer Science, Computer Programming (Java, Python), Introduction to Cyber Warfare
- Developed a web service (Code Evaluation System) which evaluates submitted code automatically.
- Participated in a research project which suggests adoption of IPv6 in military network of Korea.
- Managed capstone project which suggests utilizing k-means algorithm to SNS analysis.

Research Assistant & Teaching Assistant — *Mar. 2013 - Feb. 2015*

Data Intensive Computing Lab (DICL), UNIST — *Ulsan, S.Korea*

- Courses in charge as TA: Engineering Programming(C++), Computer Architecture
- Implemented and managed code submission&evaluation program. (Written in C++ language with Bash script)
- Implemented a prototype of MapReduce framework (EclipseMR) which utilizes semantic memory cache.
- Developed a job shceduling middleware which leverages EM-KDE algorithm.
- Conducted a research to apply data migration in a distributed cache infrastructure.
- Configured and managed server cluster which has 40 CentOS nodes.

UROP (Undergraduate Research Opportunities Program)

Jun. 2011 - Sep. 2011

Dept. of Computer Science, University of Maryland — *College Park, Maryland, US*

- Developed a cache-aware job scheduling algorithm named DEMB.
- Worked as visiting intern student with Prof. Alan Sussman.

LG Electronics Internship Program

Jan. 2012 - Feb. 2012

LG Electronics — *Changwon, S.Korea*

- Tested smartphone app for electronic appliances.
- Investigated proper wireless communication for electronic appliances.

Undergraduate Research Assistant & Undergraduate Teaching Assistant

Oct. 2010 - Feb. 2013

Data Intensive Computing Lab (DICL), UNIST — *Ulsan, S.Korea*

- Devised a job scheduling algorithm DEMB during the UROP program.
- Implemented a Java Swing program which visualizes the connetivity of nodes inside a peer-to-peer grid system.
- Courses in charge as TA: Engineering Programming(C++)

Projects

TeraZerg

Personal Project

A personal project to develop an AI program which plays the game Starcraft: Broodwar — *Jan. 2017 - Present*

- Based on the BWMirror, a java implementation of BWAPI (Brood War API)
- Environment analysis through graph representation.
- A* path-finding algorithm implemented to the AI

Capstone Design Project

Korea Military Academy

A capstone design project conducted with students in Korea Military Academy — *Jan. 2017 - Dec. 2017*

- Keyword extraction based on TF-IDF algorithm.
- Suggested document grouping of SNS documents with k-means clustering.
- Implemented a crawler to crawl documents from Facebook pages.
- Written in Python 3 with facebook-sdk, NLTK (Natural Language Toolkit).
- Succesfully clustered documents by k-means clustring algorithm and extracted important words.

Code Evaluation System

Korea Military Academy

A web implementation which evaluates submitted code automatically — *Jan. 2016 - Mar. 2017*

- The system manages information of courses, students, assignments and submissions with PostgreSQL database. It automatically compiles submitted code and compares output of the code to correct output, and gives scores. Supported languages are Python 2/3, Java.
- The web service is served with Django and nginx on RHEL. Back-end processing is mostly implemented in Python. The service is implemented from scratch.
- Using this system, students could easily test their programming assignments in real time and get feedback for their submissions. And professors could save time to evaluate and grade all the submissions.

IPv6 Adoption Model in Military Network of ROK

Korea Military Academy

A research project to suggests IPv6 adoption model to military network of Korea — *Jan. 2017 - Jun. 2017*

- Investigated progress of international/domestic IPv6 adoption both in military area and industrial area.

EclipseMR, a MapReduce framework employing semantic caches

UNIST

A prototype of MapReduce framework like Hadoop, Spark, etc — *Jan. 2014 - Jun. 2015*

- A MapReduce framework which works on two layers of storage, distributed in-memory caches and DHT file systemk.
- Locality-aware fair job scheduling policy is implemented as a task scheduler.
- Could get better performance than Apache Hadoop, Apache Spark from some usual MapReduce applications such as word count, PageRank, k-means clustering etc.
- The program is mainly written in C++ from scratch. Technical challenges such as socket programming, multi-process programming, Inter-Process Communication were involved in this project.

Job Scheduling Policy for Multi-dimensional Data Processing

UNIST

A project to design job scheduling policies in distributed environments — *Dec. 2010 - Jun. 2015*

- The Hilbert space-filling curve was implemented and used over this projects to convert multi-dimensional problem space into one-dimensional space.
- Suggested DEMB which records past queries and divide problem space according to the record.
- Improved the DEMB algorithm and devised EM-KDE which uses exponentially moving kernel density estimation.
- Developed data migration policy for distributed cache infrastructure.
- Suggested collaborative scheduling in the use case of geographically distributed cloud systems.
- Algorithm implementation and evaluations of each scheduling algorithm were conducted with an event-driven simulator written in Java.

Publications

Keyword Extraction using k-means Clustering

Youngmoon Eom, Keetaek Park, Youngseong Cho, and Seunghoon Lee — *Dec. 2017*

- International Journal of Trend in Research and Development (IJTRD), Volume-4 | Issue-6

EclipseMR: Distributed and Parallel Task Processing with Consistent Hashing

Vicente A. B. Sanchez, Wonbae Kim, Youngmoon Eom, Kibeom Jin, Moohyeon Nam, Deukyeon Hwang, Jik-Soo Kim, and Beomseok Nam — *Sep. 2017*

- 19th IEEE International Conference on Cluster Computing
- The first three authors contributed equally in this work.

IPv6 Adoption Model in Military Network of ROK, Current Status and Suggestions

Youngmoon Eom, Jungho Kang, Kyuyong Shin, and Jincheol Yoo — *Aug. 2017*

- International Journal of Trend in Research and Development (IJTRD), Volume-4 | Issue-4

EM-KDE: A Locality-Aware Job Scheduling Policy with Distributed Semantic Caches

Youngmoon Eom, Jonghwan Moon, Deukyeon Hwang, Junyong Lee, Minho Shin, and Beomseok Nam — *Sep. 2015*

- Journal of Parallel and Distributed Computing (JPDC) Volume 83

Multi-dimensional Multiple Query Scheduling with Distributed Semantic Caching Framework

Youngmoon Eom, Jinwoong Kim, and Beomseok Nam — *Sep. 2015*

- Cluster Computing, Vol. 18, No. 3, Springer 2015

Improving Multi-dimensional Query Processing with Data Migration in Distributed Cache Infrastructure

Youngmoon Eom, Jinwoong Kim, Deukyeon Hwang, Jaewon Kwak, Minho Shin, Beomseok Nam — *Dec. 2014*

- The 21st annual IEEE International Conference on High Performance Computing

Collaborative Multi-dimensional Dataset Processing with Distributed Cache Infrastructure in the Cloud

Youngmoon Eom, Jonghwan Moon, Jinwoong Kim, and Beomseok Nam — *Sep. 2014*

- 2nd International Workshop on Autonomic Management of Grid and Cloud Computing (in conjunction with ACM CAC 2014)

DEMB: Cache-Aware Scheduling for Distributed Query Processing

Junyong Lee, Youngmoon Eom, and Beomseok Nam — *May. 2012*

- 16th Workshop on Job Scheduling Strategies for Parallel Processing (JSSPP 2012), in conjunction with IPDPS 2012

Honors & Awards

2009 - 2013	**National Scholarship for Science and Engineering**, Korea Student Aid Foundation	*UNIST*
Oct. 2011	**2nd place**, PLSI Korea Supercomputing Conference (KSC)	*Seoul, S.Korea*
Nov. 2010	**3rd place**, PLSI & KSCA Supercomputing Conference	*Jeju, S.Korea*
2009 - 2010	**Certificate of Merit**, Electrical and Computer Engineering, UNIST	*UNIST*