# Ryoung Woo

Software Engineer · Data Scientist

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*"I want to grow into a better mathematician and team player."*

## Summary

As a developer, I have grown up as a mathematician and team player for six years. As a mathematician, I enjoy thinking procedurally like a puzzle. At first, I should focus on small pieces. The sooner I predict the completed view, the faster I can solve the puzzle easily. As a team player, I enjoy cooperating passionately like a college basketball player. Whether break time in game or train time before game, we discussed a lot. What is needed, How to apply it, Which is better, finally Whether my team wins or not. I want to grow into a better mathematician and team player.

## Experience

### BISTel, Co.

*Seoul, S.Korea*

Software Engineer, Data Scientist — *Nov. 2013 - Present*

- Research on new technology of IT and academic paper. Share this with team.
- Gather requirement from external client and internal stakeholder.
- Develop or upgrade a product according to the above technology, paper, requirement.
- Deploy the product to client and Make them solve their problem.

### Korea Information Engineering Services, Co.

*Seongnam, S.Korea*

Internship — *Sep. 2013 - Oct. 2013*

- Check quality assurance for product features to be released.
- Refine documentation for a user's point of view.

## Education

### Ministry of education, science and technology, Daejin University

*Seoul, S.Korea*

Completion of course, Hadoop expert for bigdata storage and management based on cloud computing — *May. 2013 - Aug. 2013*

- Because I completed this course well, I was able to participate in the internship.

### College of Education, Kangwon National University

*Chuncheon, S.Korea*

Bachelor of Science, Mathematics Education — *Mar. 2004 - Feb. 2012*

- Scholarship on 1st year 2nd semester, 3rd year 2nd semester.
- Semi runner up of college basketball competition on 2nd year.

## Project

### Develop eDataLyzer

*Seoul, S.Korea*

Software Engineer, Data Scientist — *Nov. 2013 - Present, more than 30 M/M*

- The eDataLyzer is a existing semiconductor analytics product for wafer yield map classification and root cause correlation.
- The goal of this project is to redevelop the eDataLyzer for big data.
- So we have led this project in three ways.
- 1st, reconstruct the architecture to micro services from monolithic one.
- 2nd, reorganize to a role based teams from a unified team.(Client, Server, Algorithm, Research, Technical Sales/Support.)
- 3rd, redevelop by Java and C# not only C#
- I belong to Algorithm team, mainly focusing on parallelizing algorithm by new big data technologies.
- In briefly, I have done three ways of parallelizing algorithms.
- 1st, I had redeveloped the algorithms by Java, PostgreSQL, Spring for small data clients.
- 2nd, I had redeveloped the algorithms by non Hadoop based technologies.(GreenPlumDataBase PL/Java, Oracle-R)
- 3rd, I had redeveloped the algorithms by Hadoop based technologies.(Hadoop, BDA, Hawq, HBase, Spark, Eco system)
- In this project, we have a lot of semiconductor clients.(Korea: Samsung Electronics, SKHynix, SKSiltron, Japan: Toshiba, Sharp, Taiwan: TSMC, China: BOE)

### Research to Apply Reinforcement Learning on Semiconductor

*Seoul, S.Korea*

Researcher, Software Engineer

*Dec. 2018 - Present, 9 months, 6 M/M*

- The goal of this project is to apply reinforcement learning on semiconductor and share the experience with team.
- I pick up 8-Puzzle as a environment for reinforcement learning.
- Here's why I pick up it in details.
- 1st, in order to collaborate with teammates, I need to find the generalized environment is easy to apply Graph Theory.
- So I pick up operation management of production on semiconductor.
- 2nd, in order to find suitable environment not complex one, I pick up 9-Puzzle.
- Focus on shortest path not yield, productivity, stability, automation rate, etc.
- The recent research situation is as follows.
- 1st, solve 8-Puzzle by Dynamic Programming
- 2nd, fail to solve 8-Puzzle by QLearning, Deep SARSA, Polish Gradient.
- The rest of the research is to find out why and how to overcome it.

### Develop Matrix Profile on Transfer System

*Seoul, S.Korea*

Software Engineer

*Jul. 2017 - Dec. 2017, 5 months, 2 M/M*

- The goal of this project is to predict a shutdown of motor based on time series sensed data.
- Client's product-lines(blue-collars) found out a shutdown once a year and hate this problem.
- But both client's office-lines(white-collars) and our previous algorithm didn't predict it.
- Because the algorithm focus on a vibration analysis on rotationary machine.
- So we created this project as a subproject of the previous one and led this project as below.
- 1st, we found out the matrix profile which is a suitable algorithm for time series predict.
- 2nd, I implemented the algorithm in python and deploy it to client. And solve the problem successfully.
- 3rd, I implemented it in java and integrate with UI. Teached clients how to solve their problem through our product.
- This project's client is Hyundai Motor.

## Writing

### A Guide for Developers in Start-up

*Facebook Page*

Founder & Writer

*Jan. 2015 - PRESENT*

- Drafted daily news for developers in Korea about IT technologies, issues about start-up.

## Program Committees

2016 **Problem Writer,** 2016 CODEGATE Hacking Competition World Final *S.Korea*

2013 **Organizer & Co-director,** 1st POSTECH Hackathon *S.Korea*

## Extracurricular Activity

### PoApper (Developers' Network of POSTECH)

*Pohang, S.Korea*

Core Member & President at 2013

*Jun. 2010 - Jun. 2017*

- Reformed the society focusing on software engineering and building network on and off campus.
- Proposed various marketing and network activities to raise awareness.

### PLUS (Laboratory for UNIX Security in POSTECH)

*Pohang, S.Korea*

Member

*Sep. 2010 - Oct. 2011*

- Gained expertise in hacking & security areas, especially about internal of operating system based on UNIX and several exploit techniques.
- Participated on several hacking competition and won a good award.
- Conducted periodic security checks on overall IT system as a member of POSTECH CERT.
- Conducted penetration testing commissioned by national agency and corporation.