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, 5 years 10 months

- 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, 2 months

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

Education

Daejin University, Ministry of education, science and technology

Seoul, S.Korea

Completion of course, Hadoop expert for bigdata storage and management based on cloud computing

May. 2013 - Aug. 2013, 4 months

- 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, 5 years 10 months, 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)
- And the project types are PoC, pilot, production.

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 8-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, 6 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.
- And the project type is PoC.

Develop Predictive Maintenance on Semiconductor

Seoul, S.Korea

Software Engineer

Nov. 2016 - Mar. 2017, 5 months, 4 M/M

- The goal of this project is to provide predictive maintenance on semiconductor's etching tools.
- In order to change client's empirical maintenance(condition, time), we led this project as below.
- 1st, redefine input data through Self Organizing Map. And define health score as distance of each vectors of input data and observation vector.
- 2nd, apply Double Exponential Weighted Moving Average to the health score. And get Remaining Useful Life for each vectors of input data.
- But we got a feedback that our product was too late for client. So we additionally led this project as follows.
- 1st, detect the bottle neck of our product as the DEWMA not the SOM.
- 2nd, apply Spark and HDFS on the DEWMA. And find out a tuning point.
- And the project type is pilot.

QA & Documentation on new Product

Seongnam, S.Korea

Internship

Aug. 2013 - Oct. 2013, 3 months, 5 M/M

- During the internship, I did the following activities.
- 1st, quality assurance for each feature on new product.
- 2nd, modify the previous document by the user's perspective.

Skills

Programming	Java, SQL: 6 years on production, Python: 2 years on papers research.
Backend	Spring Frameworks: a year on production.
Database	PostgreSQL: 6 years on production, Oracle, HBase: a year on production.
Bigdata	GPDB: 6 years on production, Hadoop, Spark: 4 years on production.
ML/AI	Nvidia CUDA, Keras, Tensorflow: a year on papers research.
DevOps	Linux, Docker, On premise Cloud(KVM), Public Cloud Azure, AWS: Use these as utility tool on projects.
Research	Read and implement the latest papers by python.
Leadership	Lead projects successfully for a year.
Communications	Communicate smoothly with various stakeholders (aggresice client, academic advisor for government, etc).
Languages	Native in Korean, Limited working proficiency in English.

Objective

Big data Analyst, Big data Engineer, Machine Learning Researcher, Reinforcement Learning Researcher