Ryoung Woo

Hope Job : Software Engineer, Data Scientist

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

Summary

As a developer, I have grown up as a mathematician and team player for six years. Like a puzzle game, I enjoy thinking logically and procedurally. At first, I should focus on small pieces. The sooner I predict the completed view, the faster I can solve the puzzle easily. Like a college basketball team player, I enjoy cooperating passionately. Whether break time in game or train time before game, we discussed a lot like followings. What is needed, How to apply it, Which is better, finally Whether the decision is good for my team. I want to grow into a better mathematician and team player.

Experience

BISTel, Co.

Seocho-gu, Seoul City

Software Engineer, Data Scientist

Nov. 2013 - Present, 5 years 10 months

- Research on new technology of IT and new idea of academic paper. Share this with team.
- Gather and define 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 guide them to solve their problem by it.

Korea Information Engineering Services, Co.

Bundang-gu, Seongnam City

Internship

Sep. 2013 - Oct. 2013, 2 months

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

Education

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

Jongno-gu, Seoul City

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 City, Gangwon-do

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, redevelop the algorithms by Java, PostgreSQL, Spring for small data.
- 2nd, redevelop the algorithms by non Hadoop based technologies(GreenPlumDataBase PL/Java, Oracle-R) for big data.
- 3rd, redevelop the algorithms by Hadoop based technologies(Hadoop, BDA, Hawq, HBase, Spark, Eco system) for big data.
- In this project, we have a lot of semiconductor clients as follows.
- Korea(Samsung Electronics, SKHynix, SKSiltron), Japan(Toshiba, Sharp), Taiwan(TSMC), China(BOE)
- This project type has been extended to diversity.(PoC, Pilot, Production)

Apply Reinforcement Learning on semiconductor production process management

Seoul, S.Korea

Researcher, Software Engineer

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

- This project type is a pre-production research.
- Chose 8-puzzles as a reinforcement learning environment for the following reasons.
- 1st, in order to collaborate with teammates, I need the generalized environment is easy to apply Graph Theory.
- So I picked up operation management of semiconductor's production.
- 2nd, in order to find suitable environment not complex one, I pick up 8-Puzzle as a simplified the opearation management of production on semiconductor.
- Focus on shortest path not yield, productivity, stability, automation rate, realtime, etc.
- The recent research situation is as follows.
- 1st, solve 8-Puzzle by Dynamic Programming and compare by the other algorithms such as Shortest-path tree, Dijkstra.
- 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 for predict failure of car production line's 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 require to solve it.
- 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.
- The client of this project is Hyundai Motor. And the project type is PoC.

Develop Predictive Maintenance on semiconductor equipment

Seoul, S.Korea

Researcher, Software Engineer

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

- The goal of this project is to develop predictive maintenance on semiconductor etching equipment.
- 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.
- The client of this project is SKHynix. 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, check functional and non-functional quality factors for each feature in the 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 : aggresive client, academic advisor for government, etc.
Languages	Native in Korean, Limited working proficiency in English.

Objective

Software Engineer, Data scientist