

DONGWON KIM

SOFTWARE ENGINEER

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Summary

- **Fields:** Distributed computing, data engineering, recommender system
- **Programming Languages:** Python, C, Bash, Scala, Java
- **Skills:** Aerospike, HBase, Spark, Impala, Hive, Presto, AWS, Docker

Work Experience

Senior Machine Learning Engineer

Mar. 2022 - Present

TOSS OF VIVA REPUBLICA,

Seoul, Korea

Viva Republica operates financial super app Toss including payment services, financial services, and stock brokerage with over 15 million active users in Sep. 2023.

- **Machine Learning Platform**

- Feature Store

s : t

- Multi-armed bandits system

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- Operators for data scientists

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Technical Leader

Mar. 2020 - Mar. 2022

FINANCE SERVICE OF NAVER FINANCIAL CORP. IN NAVER CORP.,

Sungnam, Korea

NAVER FINANCIAL operates financial platform including online payments, loan services from Nov. 2019, and the number of monthly active users is over 13 million in Mar. 2021.

- **Data Pipeline**

- Building and sustaining a secure Hadoop environment

The Hadoop has about two hundreds user : Hadoop, Kerberos, Ranger, Ansible, OpenWhisk

- Automatically collecting the massive and various formatted data from diverse data sources

Only configurations are required when ingesting new data without source codes : Hive 3.0, Compactor, CDC (Change Data Capture), OracleDB, MySQL, MongoDB, Hive, Kafka Connect, Airflow, Spark

- **Data Science**

- For target marketing, identifying users on specific conditions such as vehicle owners, potential customers, and so on

We profile users for preparing diverse finance services : LightGBM, Lift Score, Bayesian Optimization

- Analyzing financial and commercial data for promotion activities of NAVER FINANCIAL services

: Propensity Score Analysis, Casual Discovery

Technical Leader

Dec. 2018 - Mar. 2020

FLO MUSIC SERVICE OF DREAMUS COMPANY IN SK TELECOM,

Seoul, Korea

SK Telecom is the largest mobile operator in Korea, and FLO music service has 1.3 million memberships.

- **Infrastructure Developments**

- Migration to AWS from on-premise infrastructure

We want to get scalable big data platform, and now, under 100 engineers are using this infrastructure : EC2, VPC, S3, EMR, Aurora, Presto, Redash, CloudWatch

- **Music Recommender System**

- Design/development a data pipeline including log data and music metadata

There are about 10 GB of daily log data and 20 GB of music metadata : S3, Glue, Hive, Spark, Presto, Sqoop, Docker

- Personalized playlist generation with trained models

27 percentages of users listen with these playlists in Aug. 2019, though under 5 percentages of users listened in Jan. 2019 : Fasttext, Faiss, Spark

- Continuous extraction of mood features from songs with music information retrieval techniques

Mood information has been used for the recommendation based on users' mood preference : Tensorflow, Lambda, ECS, SQS, DynamoDB, S3, Glue

Software Engineer

Aug. 2015 - Nov. 2018

MUSIC STREAMING SERVICE IN NAVER CORP.,

Sungnam, Korea

NAVER is Korea's top search portal, and NAVER music streaming service has a membership of over 0.8 million in 2018.

- **Data Pipeline**

- Development of a pipeline to extract mood features from song

That pipeline extract those features as soon as a song is released newly : Python, PyArrow, RabbitMQ, Nomad, Consul

- Design/development of A/B testing platform : HBase, Spark, SpringBoot

- **Music Recommender System**

- Development of a real-time recommender system (ratio station) applying user's listening feedback

About 20 percentage of users were listening with this continuous ratio station in Dec. 2018 : Python, Redis, Similarity Search, Matrix Factorization, Gensim, Fasttext, Annoy, Faiss

- Recommendation songs not listened yet applying a mixture of collaborative/content-based filtering

About 10 percentage of users were listening discovered songs in Dec. 2018 : Spark, Hive, Matrix Factorization

Education

M.Sc. in Computer Science

Mar. 2011 - Aug. 2015

YONSEI UNIVERSITY, one of Korea's top-three universities, considered the most prestigious in the country.

Seoul, Korea

"Content-centric energy management for mobile devices" (Advisor: Prof. Hojung Cha)

B.S. in Computer Science

Mar. 2007 - Feb. 2011

YONSEI UNIVERSITY

Seoul, Korea

Selected Publications

Deep Learning (3 papers)

- B. Jeon, A. Kim, C. Kim, **D. Kim**, J. Park, J. Ha, "Music Emotion Recognition via End-to-End Multimodal Neural Networks," *Proceeding of the 11th ACM Conference on Recommender Systems (RecSys 2017)*, Aug. 2017

System Engineering (12 papers)

- **D. Kim**, N. Jung, Y. Chon, H. Cha, "Content-Centric Energy Management of Mobile Displays," *IEEE Transactions on Mobile Computing (TMC)*, DOI: 10.1109/TMC.2015.2467393
- C. Yoon, **D. Kim**, W. Jung, C. Kang, H. Cha, "AppScope: Application Energy Metering Framework for Android Smartphone using Kernel Activity Monitoring," *Proceeding of 2012 USENIX Annual Technical Conference (USENIX ATC)*, Jun., 2012.