Kwangsoo Shin

Machine Learning Engineer

 ksshin@kakao.com

 kwangsooshin

 kwangsooshin

Introduce

Careers

Yanolja

Machine Learning Engineer, Feb. 2021 - Present

- Machine Learning Engineer in Search team
- Improve search quality through data and metric analysis to connect travel and travel
- Designed new feature for easy and good search to use machine learning methods

Lunit

Software Developer, Aug. 2019 - Feb. 2021

- Developer of Lunit INSIGHT Backend server
- Maintain RESTful API for finding lesions in chest, breast and mammography X-ray
- Designed new feature for visualization of deep learning models analysis result

Introduce

Education & Skills

Master's Degree

Sogang University
Computer Science and Engineering.
Multimedia System Lab. Advisor Professor Jongho Nang
Thesis: A CNN-based Place Classifier with Attention Method for scene-level Place Recognition in Broadcasting Video

Bachelor's Degree

Sogang University
Computer Science and Engineering & Mass Communication & Media Engineering

Skills

Programming Languages	C, Python, SQL, Java
Platforms & Frameworks	PyTorch, PySpark, Django
And also	Docker, Airflow

Thesis

A CNN-based Place Classifier with Attention Method for Scene-level Place Recognition in Broadcasting Video

Background

- The video contains many scenes, which in turn consist of many shots
- Each shot may or may not have information about the place

Methods

- First, sample frames which helped or easy to recognize the place
- Second, Extracts the feature vectors for the selected frame and fuses them to make scene-level feature
- Finally, For scene recognition use classifier the fused features
  - The strength of each frame features are adjusted through attention method to improve performance
  - And three methods are used to fuse feature: pooling, convolution, clustering

Training & Validations

- There were not enough dataset for scene-level place recognition in video.
- To solve this problem, Use image-based dataset for training and validation the proposed methods.

Projects

@ Yanolja

Search by Room Information

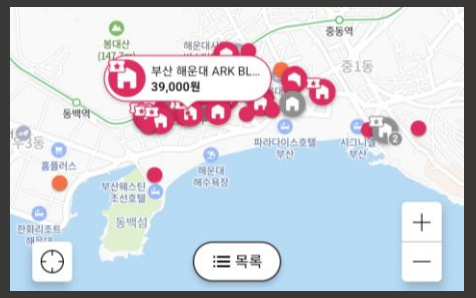
Feb. 2022 - Present

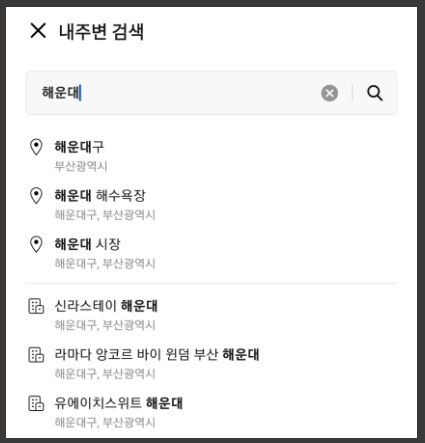
- Adding room information in search keyword to reduce the rate of no search result
- Extracting tokens for indexing using client logs to reflect user needs and reduce abusing
- Developed pipeline appending allow list and excepting block list to improve performance

Around Autocomplete

Nov. 2021 - Feb. 2022

- Designed pipeline to collect and convert keywords from in/outbound data
- Adding geo-metadata in keywords such as administrative district or location
- Developed scheduled tasks for each data property





Projects

@ Yanolja

Cleansing Search Keyword

Aug. 2021 - Jan. 2022

- Provided search keywords that require cleansing by containing duplicated or forbidden words
- Designed new ranking considering the length and number of search keywords
- Developed API server to prevent registration of invalid search keywords in admin page

검색 키워드 검증 결과

키워드	구분	검증 결과	비허용 / 클렌징 권장 사유
역삼동모텔	기 등록 키워드	허용	
**	기 등록 키워드	허용	
서울모텔	기 등록 키워드	클렌징 권장	등록 데이터와 중복되는 키워드가 포함되었습니다. (주소: 서울특별시)
** 호텔	기 등록 키워드	클렌징 권장	등록 데이터와 중복되는 키워드가 포함되었습니다. (숙소명: 강남 **)
강남모텔	기 등록 키워드	클렌징 권장	등록 데이터와 중복되는 키워드가 포함되었습니다. (숙소명: 강남 **, 주소: 강남구)
서울	기 등록 키워드	비허용	등록 데이터와 중복되는 키워드를 입력하였습니다. (주소: 서울특별시), 다른 키워드와 중복되는 키워드를 입력하였습니다. (중복 키워드: 서울모텔)
역삼모텔	기 등록 키워드	비허용	다른 키워드와 중복되는 키워드를 입력하였습니다. (중복 키워드: 역삼동모텔)
강남역	추가 요청 키워드	비허용	검색 필드와 중복되는 키워드를 입력하였습니다. (지하철역: 강남)

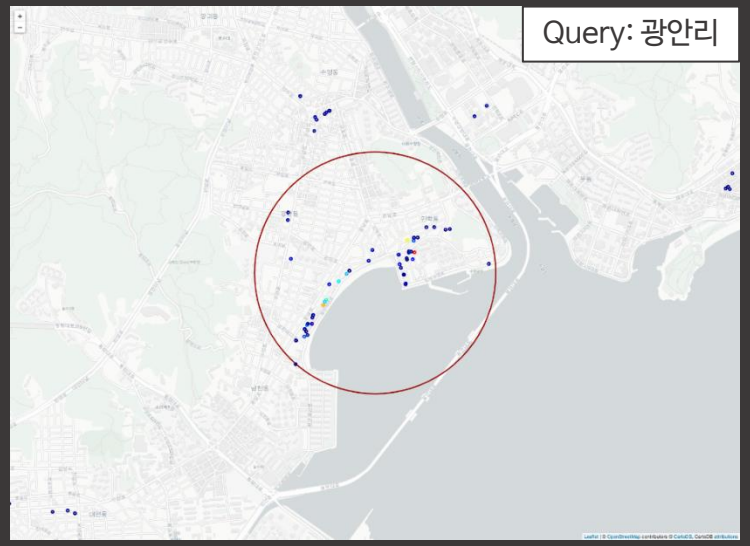
Projects

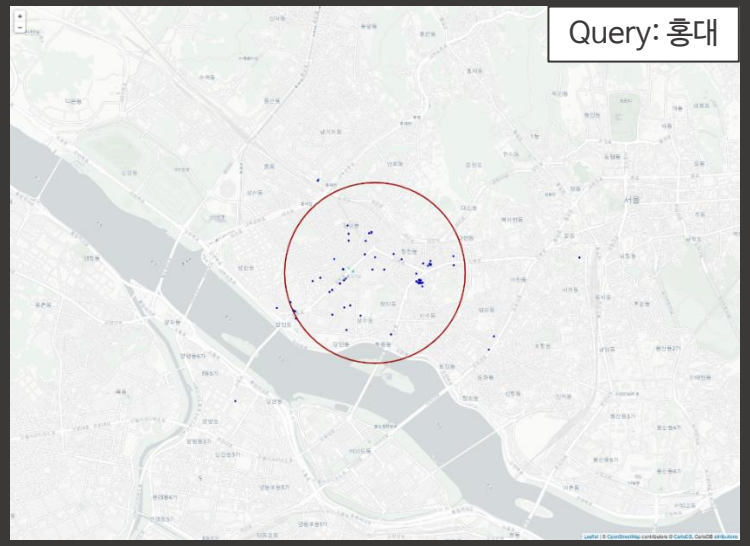
@ Yanolja

Regional Query Ranking

Apr. 2021 - Sep. 2021

- Designed query to region extractor and its pipeline
- Analyzed between query and location of ordered accommodation to extract regional query
- Developed new ranking formula to add regional information





Projects

@ Yanolja

Recommend Related Keyword

Feb. 2021 - Aug. 2021
(Wait for deployment)

- Developed related keyword recommendation pipeline
- Designed data collection method for travel and accommodation industry
- Created related keyword model using association rules

(Last updated Mar. 15. 2022)

Original Keyword	Related Keywords				
강남역	강남	강남역 모텔	역삼	양재역	언주역
경주	경주 황리단길	포항	부산	경주 풀빌라	대구
신촌	신촌역	홍대	합정	이대	영등포

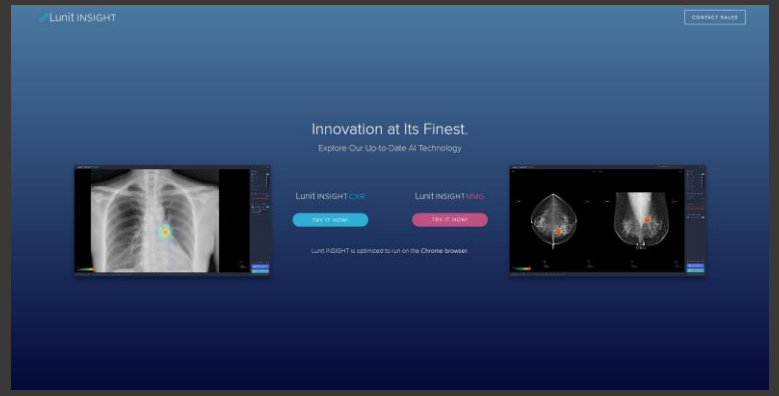
Projects

@ Lunit

Improve Lunit INSIGHT Backend server

Aug. 2019 - Feb. 2021

- Add unit test code and integrate with CI/CD Tool (Travis → Drone CI)
- Add new API to visualize the abnormality score with outline of each lesion in color
- Change API JSON response to improve flexibility and standardization
- Add UDI(Unique Device Identification) system integration
- Add localization support
- Improve cyber security



Projects

@ Sogang Univ.

Large Scale Video Classification Challenge

Research Assistant, Aug. 2017 - Oct. 2017

- Rank 8th from Large Scale Video Classification Challenge 2017, Workshop on ACM Multimedia 2017
- Designed deep learning models, which consists of the frame segment encoder, the feature extractor and the feature fusion layer

The 2nd YouTube-8M Video Understanding Challenge

Leader & Software Engineer, Jul. 2018 - Aug. 2018

- Rank 44th from The 2nd YouTube-8M Video Understanding Challenge, Workshop on ECCV 2018 (Team name: sogang-mm)
- Approached video classification using various deep representations
- Trying to various tasks to keep the challenge competition rules

Projects

@ Sogang Univ.

Video Classification & Video Understanding

- **Approach for Video Classification with Multi-label on YouTube-8M Dataset** [pdf]
  Kwangsoo Shin, Junhyeong Jeon, Seungbin Lee (Team sogang-mm, disqualified from rank 44)

44	sogang-mm	0.86668

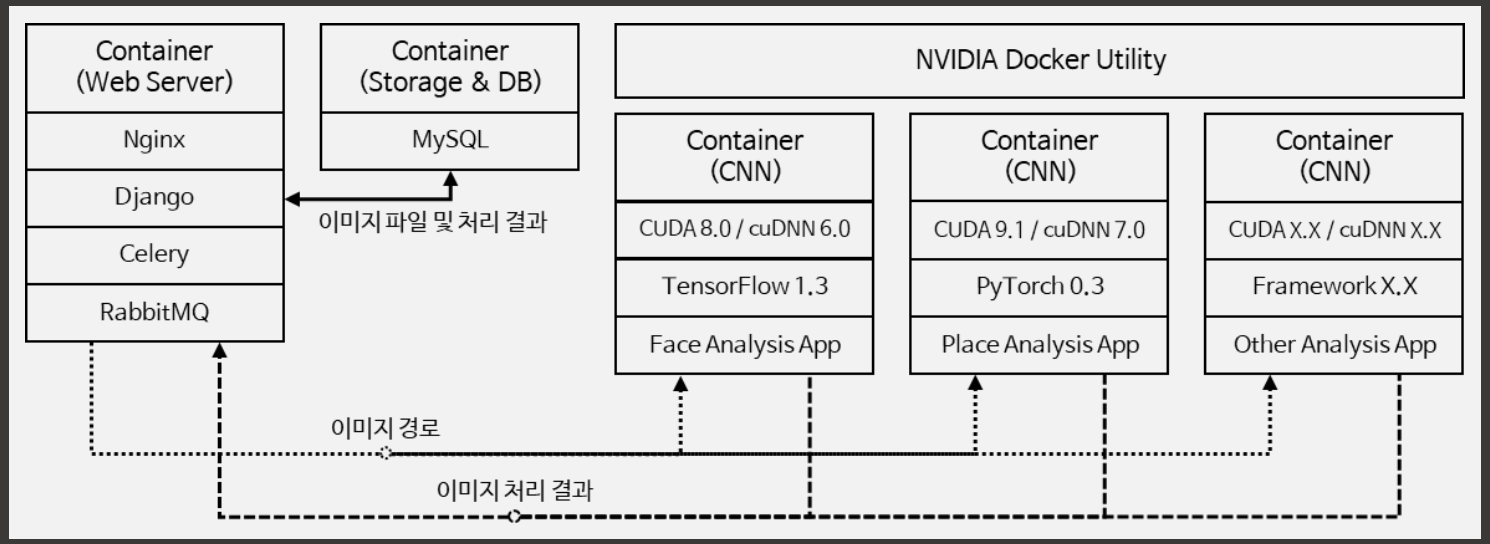
Projects

@ Sogang Univ.

Semi-automatic Video Tagging Tool for Video Turing Test

Leader & Software Engineer, Jan. 2018 - Aug. 2019

- Participated researcher of Division 3 for Video Turing Test grant funded by Korea Government(MSIT)
  - Development of QA system for video story understanding to pass Video Turing Test &
    Data Collection and Automatic Tuning System Development for the Video Understanding
- Developed detection and recognition for semi-tagging
- Implemented RESTful API server to serving results which are consist of 3-DNN models
  for classifying actors, places and objects in video



Projects

@ Sogang Univ.

Online Image Retrieval using Deep Learning

Software Engineer, Sep. 2018 - Aug. 2019

- Developed Online contents-based image retrieval system which is able to use in various domains such as fashion, clip-art and brand-logo
- Designed micro-service architecture for easily serving
- Implemented RESTful API server for application developers

User-specific Home IoT Device Control through Face and Motion Recognition

Leader & Software Engineer, Jul. 2017 - Aug. 2017

- Participated the 3rd T-Hackathon held on SK Telecom with NVIDIA
- Developed deep learning models for recognizing face and motion using NVIDIA Jetson TX2 board
- Designed to control home IoT device system

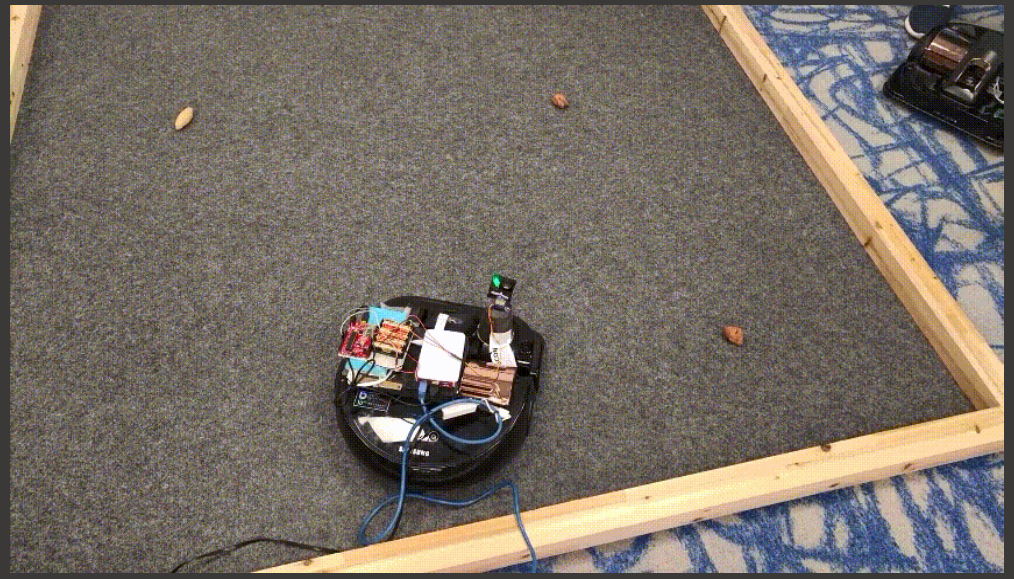
Projects

@ Sogang Univ.

Detection and Avoidance of Pet Excrement in Robotic Vacuum Cleaner

Software Engineer, Oct. 2016 - Nov. 2016

- Won 2nd prize from Consumer Electronics Hackathon held on Samsung Electronics SOSCON2016
- Developed object detection and avoidance algorithm in real time on Robot vacuum cleaner



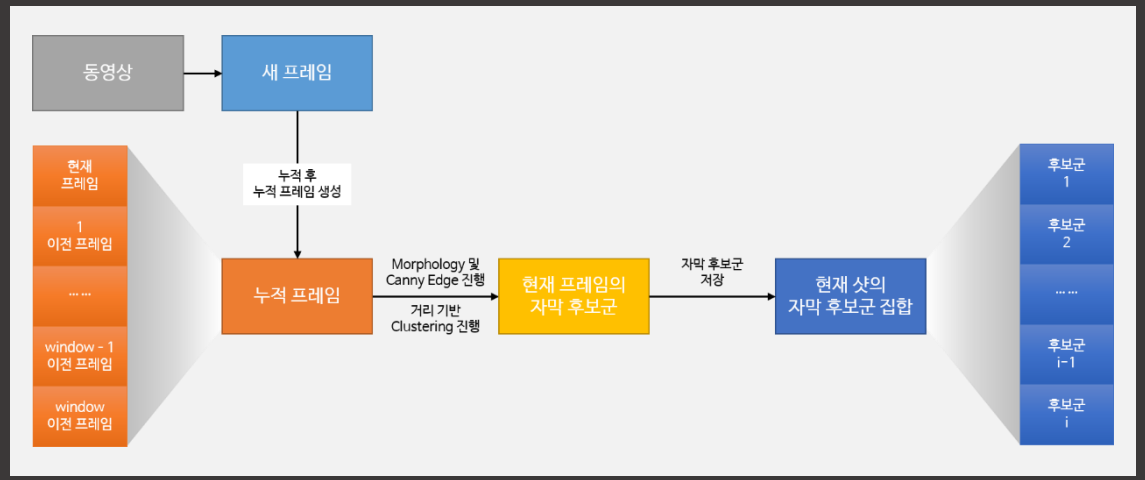
Projects

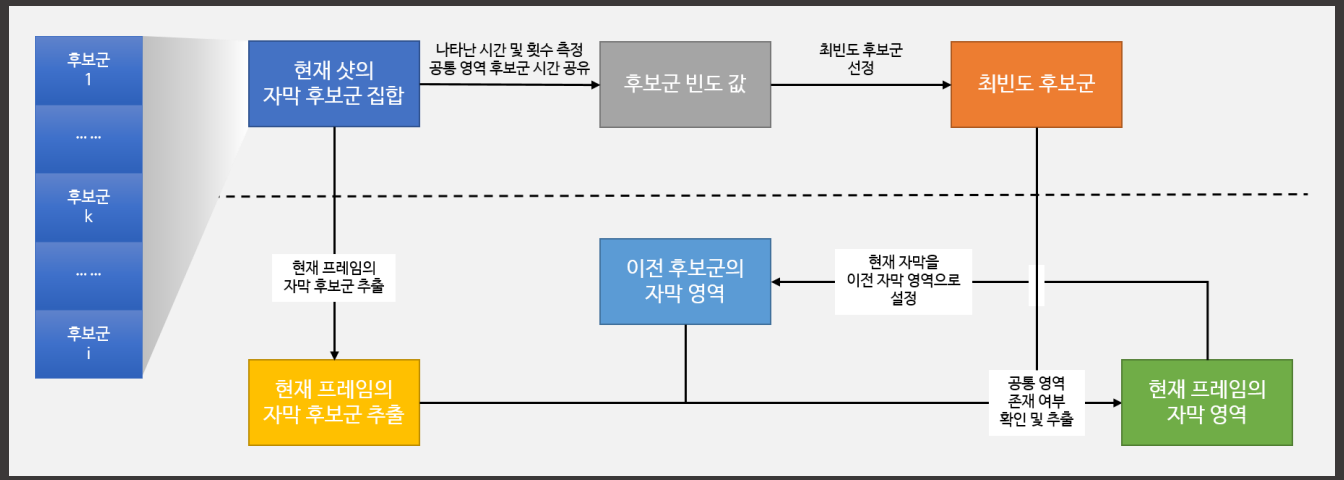
@ Sogang Univ.

An Effective Subtitle Detection Method using Temporal Accumulation of Video Frames

Software Engineer, Oct. 2016 - Nov. 2016

- Developed subtitle detection method using frame superposition
- Sum the pixel values at the same weight for all frames in the windows for blurring the movement
- Extract subtitle candidate group from post-processing result
- Select the final subtitle position from candidate group by comparing previous positions





Publications

International Conferences

A New Frame Rate Up Conversion Quality Enhancement Method Using Deep Convolutional Neural Network and Temporal Difference Map

Sangchul Kim, Seungbin Lee, Kwangsoo Shin, Jongho Nang
Proceeding of ICONI 2016

Approach for Video Classification with Multi-label on YouTube-8M Dataset

Kwangsoo Shin, Junhyeong Jeon, Seungbin Lee, Boyoung Lim, Minsoo Jeong, Jongho Nang
Proceeding of The 2nd Workshop on YouTube-8M Large-Scale Video Understanding, ECCV 2018
Available: https://link.springer.com/chapter/10.1007/978-3-030-11018-5_29

Publications

Domestic Conferences

A Design of A Navigation Filter Integrated With A Magnetometer

Kwangsoo Shin, Byunggyu Ahn, Chongsuck Rim
Proceeding of KIISE 42nd Winter Conference
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE06602800

An Effective Subtitle Detection Method using Temporal Accumulation of Video Frames

Kwangsoo Shin, Jongho Nang
Proceeding of KIISE 43rd Winter Conference
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07116205

Analyzing Graphic Area of Video Screen for an Effective Summarization of Baseball Video

Kwangsoo Shin, Jongho Nang
Proceeding of KCC 2017
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07207854

Publications

Domestic Conferences

An Adult Web Site Classification Method using Analysis of Multiple Images in Web Page

Kwangsoo Shin, Jinha Song, Jongho Nang
Proceeding of KSC 2017
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07322326

A Design of Image Analysis System with Docker using Multiple Deep Learning Frameworks and Its Performance Comparison

Kwangsoo Shin, Minsoo Jeong, Hyekyoung Seok, Jongho Nang
Proceeding of KCC 2018
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07503415

A Design of Scalable Contents-based Image Retrieval System for Various Applications using Deep Learning

Kwangsoo Shin, Minsoo Jeong, Rock Sakong, Jongho Nang
Proceeding of KSC 2018
Available: http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07613955

Awards

Excellence paper, Undergraduate Paper Competition in KIISE 42nd Winter Conference

2nd Prize, Consumer Electronics Hackathon Robotic Vacuum Cleaner Part in Samsung Electronics SOSCON2016

Best presentation paper, KIISE 43rd Winter Conference

Encouragement paper, Undergraduate Paper Competition in KCC 2017

Rank 8th, Large Scale Video Classification, Workshop on ACM Multimedia 2017

Best presentation paper, KCC 2018

Rank 44th, The 2nd YouTube-8M Video Understanding Challenge, Workshop on ECCV 2018

Thank You

kwangsoo Shin