

Donghyeon Kim

Senior Research Engineer at Hyundai Motor Company AI Research Lab
Ph.D. Candidate in Computer Science and Engineering

donghyeonk@me.com
<https://donghyeonk.github.io>

RESEARCH INTERESTS

Natural Language Processing, Text Mining, Machine Learning, Bioinformatics

EDUCATION

Korea University, Seoul March 2011 - Feb 2020 (Expected)
Ph.D. Candidate in Computer Science and Engineering (On leave: startups, Oct 2014 - Mar 2018)
Advisor: Prof. Jaewoo Kang

Korea University, Seoul Mar 2003 - Feb 2011
B.S. in Computer Science Education (On leave: military service, Aug 2006 - Jul 2008)
Advisor: Prof. Seongbin Park

EXPERIENCE

Hyundai Motor Company Dec 2019 - Present
Senior Research Engineer Seoul, Korea

- Natural Language Processing

Konolabs, Inc. Apr 2016 - Mar 2018 (Dispatch from Korea Univ. Apr 2016 - Dec 2016)
Data Scientist & Software Engineer Seoul, Korea

- Event start time prediction by learning online calendar event titles, week contexts and user preferences
- Scheduling related sentence classification
- Email bot architecture design & implementation

Opinion8, Inc. Oct 2014 - Apr 2016 (Dispatch from Korea Univ.)
CTO & Co-founder Seoul, Korea

- Opinion, location, and time based restaurant/attraction/hotel search engine implementation
- Sentiment analysis using dependency trees and part-of-speech tags
- Calculating data, error statistics using MapReduce

Republic of Korea Marine Corps Aug 2006 - Jul 2008
Computer, Signal Corpsman in the 1st division HQ Pohang, Korea

- Military service

PUBLICATIONS

Pre-trained Language Models for Biomedical Question Answering
Wonjin Yoon, Jinhyuk Lee, **Donghyeon Kim**, Minbyul Jeong and Jaewoo Kang
BioASQ Workshop at ECML PKDD, Sep 2019

BioBERT: a pre-trained biomedical language representation model for biomedical text mining
Jinhyuk Lee[†], Wonjin Yoon[†], Sungdong Kim, **Donghyeon Kim**, Sunkyu Kim, Chan Ho So and Jaewoo Kang
Bioinformatics, Sep 2019

A Neural Named Entity Recognition and Multi-Type Normalization Tool for Biomedical Text Mining

Donghyeon Kim, Jinhyuk Lee, Chan Ho So, Hwisang Jeon, Minbyul Jeong, Yonghwa Choi, Wonjin Yoon, Mujeen Sung and Jaewoo Kang
IEEE Access, Jun 2019

Learning User Preferences and Understanding Calendar Contexts for Event Scheduling

Donghyeon Kim[†], Jinhyuk Lee[†], Donghee Choi, Jaehoon Choi and Jaewoo Kang
CIKM (full, oral), Oct 2018

BEST: Next-Generation Biomedical Entity Search Tool for Knowledge Discovery from Biomedical Literature

Sunwon Lee[†], **Donghyeon Kim**[†], Kyubum Lee, Jaehoon Choi, Seongsoon Kim, Minji Jeon, Sangrak Lim, Donghee Choi, Sunkyu Kim, Aik-Choon Tan and Jaewoo Kang
PLoS One, Oct 2016

Smith Search: Opinion-Based Restaurant Search Engine

Jaehoon Choi, **Donghyeon Kim**, Donghee Choi, Sangrak Lim, Seongsoon Kim, Youngjae Choi and Jaewoo Kang
WWW (demo), May 2015

Consento: A New Framework for Opinion Based Entity Search and Summarization

Jaehoon Choi, **Donghyeon Kim**, Seongsoon Kim, Junkyu Lee, Sunwon Lee and Jaewoo Kang
CIKM (short), Oct 2012

BOSS: context-enhanced search for biomedical objects

Jaehoon Choi, **Donghyeon Kim**, Seongsoon Kim, Sunwon Lee, Kyubum Lee and Jaewoo Kang
BMC Medical Informatics and Decision Making, Apr 2012

Consento: A Consensus Search Engine for Answering Subjective Queries

Jaehoon Choi, **Donghyeon Kim**, Seongsoon Kim, Junkyu Lee, Sangrak Im, Sunwon Lee and Jaewoo Kang
WWW (poster), Apr 2012

BOSS: a biomedical object search system

Jaehoon Choi, **Donghyeon Kim**, Seongsoon Kim, Sunwon Lee, Kyubum Lee and Jaewoo Kang
DTMBIO (long), Oct 2011

[†]Equal contribution

DOMESTIC PUBLICATIONS

언어 모델링에서의 단어의 효율적인 코드북 표현 (Efficient codebook expressions of word representations in language modeling)

Byungjoo Kim, Yookyung Koh, Chan Ho So, **Donghyeon Kim** and Jaewoo Kang
Korea Computer Congress, Jun 2018

의사결정 지원을 위한 소셜네트워크 서비스의 질의응답 데이터 활용 방안 (Utilizing Social Q&A Data for Decision Making)

Jukyoung Lee, Jaehoon Choi, **Donghyeon Kim**, Donghee Choi, Minhwan Yoo and Jaewoo Kang
The 42nd Annual Meeting and Winter Conference of KIISE, Dec 2015

소셜 빅데이터를 활용한 의사 결정 검색 기술 (Decision making search technology using social big data)

Jaehoon Choi, Donghee Choi, **Donghyeon Kim**, Seongsoon Kim, Sangrak Lim and Jaewoo Kang
Communications of KIISE, Jan 2014

AWARDS

Winner of test batch 1-5, biomedical semantic question answering (Task 7b, Phase B), BioASQ Challenge

Wonjin Yoon, Jinhyuk Lee, **Donghyeon Kim**, Minbyul Jeong and Jaewoo Kang
Sep 2019

The grand prize, Start-up competition, Korea University

Jaehoon Choi, **Donghyeon Kim** and Donghee Choi

Jan 2015

PATENTS

Method, system and non-transitory computer-readable recording medium for providing predictions on calendar

Jaewoo Kang, **Donghyeon Kim**, Jinhyuk Lee and Jaehoon Choi

Application (pending), Korea: 10-2018-0070912, United States: US 2018 / 0174108 A1, Jun 2018

Method, system and non-transitory computer-readable recording medium for providing schedule-related advertisements

Yun Jeong Min, Jaehoon Choi, **Donghyeon Kim** and Jinhyuk Lee

Application (pending), Korea: 10-2018-0070921, United States: US 2018 / 0174191 A1, Jun 2018

SERVICE

WWW (2014, 2013), **CIKM** (2011), **ICWSM** (2014), **ICDE** (2014), **ICDM** (2019), **SIAM** (2011), **BIBM** (2018, 2012, 2011)

Secondary reviewer

Stock study, DMIS Lab., Korea University

Sep 2018 - Present

Member

- Hybrid Attention Networks (Hu *et al.*, 2018)

<https://github.com/donghyeonk/han>

Paper re-implementation study, DMIS Lab., Korea University

Jul 2018 - Aug 2018

Study group leader

- Match-LSTM (Wang *et al.*, 2016)

<https://github.com/donghyeonk/match-lstm>

- fastText (Joulin *et al.*, 2016)

<https://github.com/donghyeonk/fastText1607>

Data Structure (CNCE210), Korea University

Sep 2011 - Feb 2012

Teaching assistant

SKILLS

Programming Language

Python 3, Java 8+

Natural Language Processing

spaCy, nltk, gensim, Stanford CoreNLP, Google Natural Language, FANSE parser, SentiWordNet, HeidelTime, SentencePiece

Information Retrieval

Apache Solr, Apache Lucene

Machine Learning

PyTorch, TensorFlow, Keras, scikit-learn

Dimension Reduction

t-SNE, UMAP

Data Analysis & Scientific Computing

pandas, NumPy, SciPy

MapReduce

Apache Spark, Apache Hadoop

Database

Amazon DynamoDB, MongoDB, MySQL

Cloud Computing

Amazon Web Services, Google Cloud Platform, IBM Cloud

Project Tracking & Deployment

JIRA, Trello, Jenkins, mixpanel

Visualization

tensorboard, matplotlib, Google Charts, D3.js

PROJECTS

컨센서스 질의응답이 가능한 인공지능비서 시스템 개발

Mar '18 - Present

한국연구재단

인공지능 기반 기업형 일정관리 서비스 상용화 중소벤처기업부	Nov '17 - Mar '18
소셜 빅데이터 기반 콘센서스검색 기술 개발 연구성과실용화진흥원	Dec '14 - Dec '16
문헌 및 실험 빅데이터 통합분석 및 탐색 시스템 개발 한국연구재단	Nov '14 - Oct '15
소셜빅데이터분석과 검색기술의 융합을 통한 차세대 컨센서스검색 플랫폼 개발 한국연구재단	Nov '14 - Oct '15
문서 분할 색인 및 콘센서스랭크 모델을 적용한 소셜미디어 의견기반 객체검색 시스템 개발 한국연구재단	May '12 - Apr '15
학술분야 객체검색시스템 개발 정보통신기술진흥센터	Oct '11 - Jun '12
모바일 사진 콘텐츠 분석을 통해 지능형 멀티미디어 SNS 기능을 극대화 하는 Insight Search Engine의 개발 Jun '11 - May '12 중소기업청	
대용량 소셜 미디어의 sentiment 분석을 통한 인사이트 발굴 기술 개발 한국연구재단	Mar '11 - Apr '12

CERTIFICATES

정보처리기사 한국산업인력공단	May '10
컴퓨터활용능력 1급 대한상공회의소	Feb '10
사무자동화산업기사 한국산업인력공단	Aug '09

REFERENCE

Professor Jaewoo Kang
College of Informatics, Korea University
kangj@korea.ac.kr