

Donghyeon Kim

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RESEARCH INTERESTS

Natural language processing, machine learning, information retrieval, bioinformatics

EDUCATION

Korea University, Seoul

Ph.D. Candidate in Computer Science and Engineering
Advisor: Prof. Jaewoo Kang

March 2011 - Feb 2020 (Expected)
(On leave: startups, Oct 2014 - Mar 2018)

Korea University, Seoul

B.S. in Computer Science Education
Advisor: Prof. Seongbin Park

Mar 2003 - Feb 2011
(On leave: military service, Aug 2006 - Jul 2008)

EXPERIENCE

Konolabs, Inc.

Data Scientist & Software Engineer

Apr 2016 - Mar 2018 (Dispatch from Korea Univ. Apr 2016 - Dec 2016)

Seoul, Korea

- Event start time prediction by learning online calendar event titles, contexts and user preferences
- Scheduling related sentence classification using pretrained word embeddings and a bidirectional RNN
- Email bot architecture design & implementation

Opinion8, Inc.

CTO & Co-founder

Oct 2014 - Apr 2016 (Dispatch from Korea Univ.)

Seoul, Korea

- Restaurant/attraction/hotel search service based on opinion, location, and time for travelers
- Sentiment analysis using dependency trees and part-of-speech tags
- Calculating data, error statistics using MapReduce

Republic of Korea Marine Corps

Computer, Signal Corpsman in the 1st division HQ

Aug 2006 - Jul 2008

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, ECML-PKDD, Sep 2019 (in press)

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

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, 2019 (in press)

Learning User Preferences and Understanding Calendar Contexts for Event Scheduling

Donghyeon Kim[†], Jinhyuk Lee[†], Donghee Choi, Jaehoon Choi and Jaewoo Kang
CIKM (long, 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

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

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

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, BioASQ on biomedical semantic question answering (Task b, Phase B), BioASQ Challenge

Wonjin Yoon, Jinhyuk Lee, **Donghyeon Kim**, Minbyul Jeong and Jaewoo Kang
Mar 2019 - May 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), KR20180070912A, US20180174108A1, 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), KR20180070921A, US20180174191A1, 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

One of study group leaders

- 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

DOMESTIC RESEARCH PROJECTS

컨센서스 질의응답이 가능한 인공지능비서 시스템 개발
한국연구재단

Mar '18 - Present

소셜 빅데이터 기반 컨센서스검색 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 May '12 - Apr '15
한국연구재단

학술분야 객체검색시스템 개발 Oct '11 - Jun '12
정보통신기술진흥센터

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 Mar '11 - Apr '12
한국연구재단

REFERENCE

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