

# Zae Myung Kim

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## Education

### University of Minnesota Twin Cities

PH.D. IN COMPUTER SCIENCE

- Advisor: Dongyeop Kang

Minneapolis, MN

Sept. 2022 - Present

### KAIST (Korea Advanced Institute of Science and Technology)

M.S. IN COMPUTER SCIENCE

- Advisor: Ho-Jin Choi
- Thesis: "Classifying Travel-Related Intents in Textual Data Using Recurrent Neural Networks"

Daejeon, S.Korea

Sept. 2014 - Aug. 2016

### Imperial College London

B.ENG. IN COMPUTER SCIENCE

- Group Project: "Intention Recognition in Ambient Homes"
- Individual Project: "Computing Fictitious Plays in Graph-Based Games"

London, UK

Oct. 2008 - Aug. 2011

## Work Experience

### Grammarly

PHD INTERN

- Developed human-in-the-loop iterative text revision system.
- Developed span-based text revision models with data augmentation.

Remote Work

Apr. - Jul. 2022

### NAVER LABS Europe

RESEARCHER

- Researched on discovering language-specific representation of multilingual NMT models.
- Researched cross-lingual discourse analysis and its application to document-level NMT.

Meylan, France

Oct. 2020 - Feb. 2022

### Papago, NAVER Corp.

RESEARCHER

- Developed machine translation (MT) service for Thai-Korean and German-Korean language pairs.
- Developed utility programs for MT, such as sentence segmenter, corpus preprocessor, corpus aligner/crawler, etc.
- Developed website translation service based on NMT models, utilizing encoder-decoder attentions and heuristics.
- Participated in Quality Estimation shared task at WMT20; came 4th for sentence-level, 1st for document-level tasks.

Seongnam, S.Korea

Mar. 2017 - Sept. 2020

### Knowledge Engineering and Artificial Intelligence Lab, KAIST

RESEARCHER

- Developed an adaptive vocabulary learning application that incorporates a learner's linguistic proficiency and topical interests.
- Developed a health-care application that suggests *Pokémon Go* events when a user's activeness is predicted to be low.

Daejeon, S.Korea

Dec. 2016 - Feb. 2017

### NAVER LABS Corp.

RESEARCH INTERN

- Researched on conducting extended named entity recognition on Korean texts that recognizes hierarchical categories of an entity.

Seongnam, S.Korea

Sept. - Nov. 2016

### Samsung-KAIST Academic Initiatives

RESEARCH ASSISTANT

- [1st Yr.] Investigated intent classification in textual data in the context of providing well-suited services in travel and tourism domain.
- [2nd Yr.] Researched long-term human activeness modeling and prediction for wellness services using recurrent neural networks.

Daejeon, S.Korea

Apr. 2014 - Jul. 2016

### Knowledge Engineering and Artificial Intelligence Lab, KAIST

RESEARCHER

- Surveyed on plan and intention recognition.
- Researched on temporal information extraction task on both English and Korean texts.

Daejeon, S.Korea

Dec. 2013 - Sept. 2014

### International Peace Supporting Standby Force, Special Warfare Command, ROK Army

ARMY INTERPRETER & AVIATION IMAGE ANALYST

- Served as an army interpreter & translator during ROK-US combined training exercises.
- Acted as a 3D aviation image analyst and a squad leader.

Incheon, S.Korea

Jan. 2012 - Oct. 2013

- Designed and implemented a stair-walking robot using LEGO Mindstorms.
- Helped out with hosting Robotics Camp for primary school students.

## Teaching Experience

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### Elice DX (Digital Transformation) Training at Samsung Electronics

Dongtan, S.Korea; Virtual

LECTURER

Sep. 10, 22 - 25, 2022

- Ran a data science lab session for corporate executives on predicting wafers with defects from tabular data.
- Taught an intensive introductory machine learning class to new employees (lectures and lab sessions).

### Advanced Language Processing Winter School (ALPS) 2022

Virtual

TEACHING ASSISTANT

Jan. 2022

- Participated in writing programming exercises on controllable NMT for Prof. Graham Neubig's lab. session.
- Helped out with the students' technical questions about the exercises.

### Academic-Industrial Collaboration Project, Chungbuk National University

Virtual

GROUP MENTOR

Oct. 2021 - Nov. 2021

- Mentored three groups of undergraduate students on their group projects.
- The project topics included making use of public APIs, pre-trained language models, and training models for store sign classification.

### Advanced Language Processing Winter School (ALPS) 2021

Virtual

TEACHING ASSISTANT

Dec. 2020 - Jan. 2021

- Participated in writing programming exercises on multilingual NMT for Prof. Kyunghyun Cho's lab. session.
- Helped out with the students' technical questions about the exercises.

### Elice AI & Data Science Course, Daejeon Creative Economy Innovation Center

Daejeon, S.Korea

TEACHING ASSISTANT

Oct. 2016 - Apr. 2017

- Wrote five programming exercises every week for the government-funded data science course.
- [Dec. 26-27, 2016] Participated as a T/A in the data science workshop & challenge—our team came second in the challenge.

### Introduction to A.I.(CS470), School of Computing, KAIST

Daejeon, S.Korea

TEACHING ASSISTANT &amp; GUEST SPEAKER

Sept. - Dec. 2015

- Held office hours, designed and graded homeworks and programming assignments.
- [Sept. 2, 2015] As a guest speaker, presented my research work on extraction of travel-related intents from textual review data.

### Machine Learning Summer Camp 2015 (Online), School of Computing, KAIST

Daejeon, S.Korea

TEACHING ASSISTANT

Aug. 3 - 28, 2015

- Managed three discussion groups, helping out with the weekly tasks.

### Programming Practice(CS109), School of Computing, KAIST

Daejeon, S.Korea

TEACHING ASSISTANT

Mar. - Jun. 2015

- Helped out freshers with programming practical sessions taught in Scala language.

## Talks

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### Seminar talk at Dept. of Computer Engineering, Chungbuk National University

Virtual

SPEAKER

Jul. 28, 2022

- Talked about my recent work on iterative text revision, machine translation, and discourse relations.

### Colloquium talk at Graduate School of Software, KAIST

Virtual

SPEAKER

Dec. 2, 2021

- Talked about a research topic on "Cross-Lingual Discourse Analysis and Its Application".

### Invited lectures at a start-up company, Rye & Catchers

Seoul, S.Korea

SPEAKER

Aug. - Sept. 2021

- Gave a series of three seminars on recent trends on NLP and a few selected topics of the company's interests.
- Designed and provided three lab. sessions on practical NLP techniques.

### DEVIEW 2018: "Papago Internals: Model Analysis and Development with Applied Technology"

Seoul, S.Korea

SPEAKER

Oct. 12, 2018

- Talked about developing a website translation service at Papago, highlighting research issues and technical difficulties.

## Invited talk at a start-up company, Rye & Catchers

GUEST SPEAKER

Seoul, S.Korea

Nov. 11, 2016

- Talked about how textual data can be processed and utilized by *Bibly*, the company's book recommendation service.

## Two invited lectures at the Dept. of Humanities, Chonbuk National University

GUEST LECTURER

Jeonju, S.Korea

May 27 and Jun. 3, 2016

- Talked about IT and its role in the performing arts in East Asia for BA students at the Department of Humanities.

## Selected Publications

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### CONFERENCE PAPERS

#### Improving Iterative Text Revision by Learning Where To Edit From Other Revision Tasks

Dec. 2022

ZAE MYUNG KIM, WANYU DU, VIPUL RAHEJA, DHRUV KUMAR, DONGYEOP KANG

EMNLP 2022

#### Read, Revise, Repeat: A System Demonstration for Human-in-the-loop Iterative Text Revision

May 2022

WANYU DU\*, ZAE MYUNG KIM\*, VIPUL RAHEJA, DHRUV KUMAR, DONGYEOP KANG [BEST PAPER]

In2Writing at ACL 2022

#### Understanding Iterative Revision from Human-Written Text

May 2022

WANYU DU, VIPUL RAHEJA, DHRUV KUMAR, ZAE MYUNG KIM, MELISSA LOPEZ, DONGYEOP KANG

ACL 2022

#### Visualizing Cross-Lingual Discourse Relations in Multilingual TED Corpora

Nov. 2021

ZAE MYUNG KIM, VASSILINA NIKOULINA, DONGYEOP KANG, DIDIER SCHWAB AND LAURENT BESACIER

CODI 2021 at EMNLP 2021

#### Do Multilingual Neural Machine Translation Models Contain Language Pair Specific Attention Heads?

Aug. 2021

ZAE MYUNG KIM, LAURENT BESACIER, VASSILINA NIKOULINA, DIDIER SCHWAB

Findings of ACL 2021

#### A Multilingual Neural Machine Translation Model for Biomedical Data

Dec. 2020

ALEXANDRE BÉRARD, ZAE MYUNG KIM, VASSILINA NIKOULINA, EUNJEONG PARK, MATTHIAS GALLÉ

NLP-COVID19 at EMNLP 2020

#### PATQUEST: Papago Translation Quality Estimation

Nov. 2020

YUJIN BAEK\*, ZAE MYUNG KIM\*, JIHYUNG MOON, HYUNJOONG KIM, EUNJEONG PARK

WMT 2020

#### An adaptive vocabulary learning application through modeling learner's linguistic proficiency and interests

Feb. 2017

ZAE MYUNG KIM, SUIN KIM, ALICE OH, HO-JIN CHOI

Int'l Conf. on Big Data and Smart Computing

#### TIMEX3 and Event Extraction Using Recurrent Neural Networks

Jan. 2016

ZAE MYUNG KIM, YOUNG-SEOB JEONG, AND HO-JIN CHOI

Int'l Conf. on Big Data and Smart Computing

#### An approach to spam comment detection through domain-independent features

Jan. 2016

JONG MYOUNG KIM, ZAE MYUNG KIM, AND KWANGJO KIM

Int'l Conf. on Big Data and Smart Computing

#### Temporal Information Extraction from Korean Texts

Jul. 2015

YOUNG-SEOB JEONG, ZAE MYUNG KIM, HYUN-WOO DO, CHAE-GYUN LIM, AND HO-JIN CHOI

CoNLL 2015

### JOURNAL PAPERS

#### Modeling Long-Term Human Activeness Using Recurrent Neural Networks for Biometric Data

May 2017

ZAE MYUNG KIM, HYUNGRAI OH, HAN-GYU KIM, CHAE-GYUN LIM, KYO-JOONG OH, AND HO-JIN CHOI

BMC Med Inform Decis Mak [SCIE, IF:2.042]

#### Investigating the Impact of Possession-Way of a Smartphone on Action Recognition

Jun. 2016

ZAE MYUNG KIM\*, YOUNG-SEOB JEONG\*, KYO-JOONG OH, HYUNG-RAI OH, YOUSSEF IRAQI, AND HO-JIN CHOI

Sensors, 16(6) [SCIE, IF:2.437]

## Patent

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#### Terminal, server and event suggesting methods thereof

Jul. 2019

HYUNGRAI OH, HO-JIN CHOI, ZAE MYUNG KIM, KYO-JOONG OH, CHAE-GYUN LIM

US Patent US10353975B2

## Awards & Accomplishments

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2022	<b>Awarded</b> , Best Paper, In2Writing workshop at ACL 2022	Dublin, Ireland
2022	<b>Awarded</b> , 3M Science and Technology Fellowships	Minneapolis, MN
2018	<b>Runner-Up</b> , Elice Data Science Challenge (3rd place out of 300 participants)	Seongnam, S.Korea
2016	<b>Awarded</b> , Outstanding Teaching Assistant Award, 2016 Data Science Workshop & Challenge at Elice	Geumsan, S.Korea
2016	<b>Awarded</b> , Outstanding Graduate Teaching Assistant Award, School of Computing, KAIST	Daejeon, S.Korea
2012	<b>Runner-Up</b> , Republic of Korea Army Oratorical Contest, ROK Army	Incheon, S.Korea
2011	<b>Winning Team</b> , Robotics Localization Challenge, Imperial College London	London, UK
2009	<b>Winning Team</b> , The Deutsche Bank Prize for Topics in A.I. Group Project, Imperial College London	London, UK
2008	<b>Participation</b> , Northwestern European Regional Programming Contest, ACM-ICPC	Utrecht, NL
2008	<b>Bronze Medal</b> , Royal College of Science Union Science Challenge ( <i>a literary contest</i> )	London, UK

## Academic Services

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Jan. 2022	<b>Program Committee</b> , The 5th International Workshop on Dialog Systems	Virtual
Jan. 2021	<b>Program Committee</b> , The 4th International Workshop on Dialog Systems	Virtual
Dec. 2020	<b>Reviewer</b> , NLP-COVID19 at EMNLP	Virtual
Mar. 2020	<b>Reviewer</b> , IEEE Access	Virtual
Feb. 2019	<b>Program Committee</b> , The 2nd International Workshop on Dialog Systems	Kyoto, Japan

## Skills

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<b>Programming</b>	Python, Java, JavaScript, C++14
<b>ML</b>	TensorFlow, PyTorch, ONNX, Kubeflow
<b>Web</b>	Vue, React, HTML5, Flask, Streamlit, REST API
<b>DevOps</b>	SQLite, MongoDB, AWS, Docker, Kubernetes, Jenkins
<b>Languages</b>	Korean (Native), English (Proficient), French (Novice)