

# Joel Jang

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## RESEARCH INTERESTS

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Temporal/Domain Adaptation of Large Language Models, Continual Learning, Knowledge-Intensive Tasks

## EDUCATION

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### M.S. & Ph.D. (Integrated) in Artificial Intelligence

Seoul, Korea

[Language & Knowledge Lab](#) | [Graduate School of AI, KAIST](#)

March 2021 – Present

Advisor: [Minjoon Seo](#)

### B.S. in Computer Science and Engineering

Seoul, Korea

Korea University

March 2017 – February 2021

Advisors: [Jaewoo Kang](#), [Heuiseok Lim](#)

## PUBLICATIONS

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### Peer-Reviewed Conference/Journal Papers

#### [1] Towards Continual Knowledge Learning of Language Models

**Joel Jang**, Seonghyeon Ye, Sohee Yang, Joongbo Shin, Janghoon Han, Gyeonghun Kim, Stanley Jungkyu Choi, Minjoon Seo

ICLR 2022, [Spa-NLP @ ACL 2022](#) (*oral*) [[paper](#)] [[code](#)]

#### [2] Sequential Targeting: A Continual Learning Approach for Data Imbalance in Text Classification

**Joel Jang**, Yoonjeon Kim, Kyoungcho Choi, Sungho Suh

Expert Systems With Applications 2021 [[paper](#)] [[code](#)]

#### [3] Supervised Health Stage Prediction Using Convolution Neural Networks for Bearing Wear

Sungho Suh, **Joel Jang**, Seungjae Won, Mayank S. Jha, Yong Oh Lee

Sensors 2020 [[paper](#)] [[code](#)]

### Preprints

#### [4] TemporalWiki: A Lifelong Benchmark for Training and Evaluation Ever-Evolving Language Models

**Joel Jang\***, Seonghyeon Ye\*, Changho Lee, Sohee Yang, Joongbo Shin, Janghoon Han, Gyeonghun Kim, Minjoon Seo

[arXiv:2204.14211](#), [Spa-NLP @ ACL 2022](#) (*poster*) [[paper](#)][[code](#)]

#### [5] Music2Video: Automatic Generation of Music Video with fusion of audio and text

**Joel Jang\***, Sumin Shin\*, Yoonjeon Kim\*

[arXiv:2201.03809](#) [[paper](#)] [[code](#)]

(\* denotes equal contribution)

## ACADEMIC EXPERIENCES

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[Language & Knowledge Lab](#) | [Graduate School of AI, KAIST](#)

Seoul, Korea

Graduate Researcher ( Advisor : [Minjoon Seo](#) )

March 2021 – Present

Working on continual learning of large language models

**NLP & AI Lab | Korea University**

Seoul, Korea

*Undergraduate Research Intern (Advisor : [Heuiseok Lim](#))**March 2020 – June 2020*

Basic NLP Research including Machine Reading Comprehension, Open-Domain Question and Answering, Natural Questions, and Language Models. Placed 4th place in AI NLP Challenge Enliple Cup (fine-tuning large models).

**AI Research Lab | Korea University**

Seoul, Korea

*Undergraduate Research Intern (Advisor : [Dongsuk Yook](#))**December 2018 – February 2019*

Implemented multiple-GPU parallel model training algorithm (Features Replay Algorithm) using CUDA programming

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**INDUSTRY EXPERIENCES****NAVER AI Labs**

Seoul, Korea

*Research Collaborator (Collaborator : [Sangwoo Lee](#))**February 2022 – Present*

Leading a research project on developing novel methods for continual learning of LMs using entity-aware Mixture-of-Experts (MoE)

**LG AI Research**

Seoul, Korea

*Research Collaborator (Collaborator : [Joongbo Shin](#))**June 2021 – February 2022*

Leading a research project on developing benchmarks for temporal adaptation of large LMs [1,4]

**Kakao Brain**

Seongnam, Korea

*Research Intern (Mentor : [Ildoo Kim](#))**December 2020 – February 2021*

Worked on large-scaled representation learning with weakly supervision of images and caption data

**NAVER Corp. | Media Tech Group**

Seongnam, Korea

*Research Intern**July 2020 – September 2020*

Worked on hate speech detection model, AI Clean Bot 2.0 (40+ million monthly users, >80% of Korean population)  
Developed novel method of handling data imbalance using continual learning (*paper published under ESWA*)

**Korea Institute of Science and Technology European Research Centre**

Saarbrücken, Germany

*Research Intern (Mentor : [Yong Oh Lee](#))**August 2019 – January 2020*

Worked on anomaly detection & remaining useful life prediction of machinery (*paper published under Sensors*)  
Gave an Oral Presentation at *PHM Korea 2020* (2020. 07. 23)

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**HONORS AND AWARDS**

Grand Prize in Graduation Capstone Competition (Best Paper Award), 2020 (*Advisor: [Jaewoo Kang](#)*)

4<sup>th</sup> place, AI NLP Challenge Enliple Cup, 2020

3<sup>rd</sup> place, HAAFOR Challenge 2019

Future Global Leader Scholarships, Korea University, 2019

Best Innovation Award, Intel AI Drone Hackathon, 2018

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**SERVICES****Journal Sub-reviewer**

*Journal of Artificial Intelligence Research (JAIR)*

## TEACHING

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**(KAIST AI605) Deep Learning for NLP**  
*Teaching Assistant (TA)*

*Spring 2022*

## INVITED TALKS

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**Temporal Adaptation of Language Models**  
*Hyperconnect*

*May 2022*

**Temporal Adaptation of Language Models**  
*Korea University*

*February 2022*

## TECHNICAL STRENGTHS

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Coding	Tensorflow, Pytorch, Huggingface, Pytorch-Lightning, Deepspeed, Wandb
Others	Large-scale models, Multi-node parallel training, Spot VM instances, Amazon Mechanical Turk

## LANGUAGE PROFICIENCY

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Bilingual in English (*2004-2016 in US*) and Korean (*native*)  
GRE: 326 (Verbal, 157/170, 76<sup>th</sup> Percentile) | Quant, 169/170, 95<sup>th</sup> Percentile | Writing, 5.0/6.0, 92<sup>nd</sup> Percentile)  
TOEFL: 119/120 (Reading, 30 | Listening, 30 | Speaking, 29 | Writing, 30)  
SAT: 1530/1600 (Reading and Writing, 730 | Math, 800)  
Conversational in Chinese