

Curriculum Vitae

Heuseok Lim

PERSONAL DATA

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- 311 Aegineung Student Center, Korea University, 145 Anam-ro, Seongbuk-gu, Seoul, Korea

Present Position:

- Professor, Dept. of Computer Science and Engineering, College of Informatics, Korea University
- Head Director, Human-inspired AI Research, Korea University

ACADEMIC POSITIONS

2020-Present Chief Director, Human-inspired AI Research, Korea University, Korea

2008-Present Professor, Dept. of Computer Science and Engineering, Korea University, Korea

2011-2012 Visiting Professor, Dept. of Computer Science, Univ. of Colorado Boulder, USA

2004-2008 Associate Professor, Dept. of Computer Information Software, Hanshin University, Korea

1999-2004 Assistant Professor, Dept. of Information Communication, Baekseok University, Korea

EDUCATION

Ph.D. in Computer Science, Korea University, 1997.

M.A. in Computer Science, Korea University, 1994.

B.A. in Computer Science, Korea University, 1992.

Research Interests

Natural Language Processing

Artificial Intelligence & Machine Learning

Brain-Computer Interface

Computer Science Education

Information Retrieval

Publications

I have published more than 500 papers of international journals and international conferences. Please refer to Google Scholar for Heuseok Lim ([Link](#))

Representative Publications

Ask, Assess, and Refine: Rectifying Factual Consistency and Hallucination in LLMs with Metric-Guided Feedback Learning (**EACL 2023**)

Dongyub Lee, Eunhwan Park, Hodong Lee, Heuseok Lim

Hyper-BTS Dataset: Scalability and Enhanced Analysis of Back Transcription (BTS) for ASR Post-Processing (**EACL-findings 2023**)

Chanjun Park, Jaehyung Seo, Seolhwa Lee, Junyoung Son, Hyeonseok Moon, Sugyeong Eo, Chanhee Lee, Heuseok Lim

Generative Interpretation: Toward Human-Like Evaluation for Educational Question-Answer Pair Generation (**EACL-findings 2023**)

Hyeonseok Moon, Sugyeong Eo, Chanjun Park, Jaehyung Seo, Heuseok Lim

KEBAP: Korean Error Explainable Benchmark Dataset for ASR and Post-processing (**EMNLP 2023**)

Seonmin Koo, Chanjun Park, Jinsung Kim, Jaehyung Seo, Sugyeong Eo, Hyeonseok Moon, Heui-Seok Lim

Post-hoc Utterance Refining Method by Entity Mining for Faithful Knowledge Grounded Conversations (**EMNLP 2023**)

Yoonna Jang, Suhyune Son, Jeongwoo Lee, Junyoung Son, Yuna Hur, Jungwoo Lim, Hyeonseok Moon, Kisu Yang, Heui-Seok Lim

CHEF in the Language Kitchen: A Generative Data Augmentation Leveraging Korean Morpheme Ingredients (**EMNLP 2023**)

Jaehyung Seo, Hyeonseok Moon, Jaewook Lee, Sugyeong Eo, Chanjun Park, Heui-Seok Lim

CReTIHC: Designing Causal Reasoning Tasks about Temporal Interventions and Hallucinated Confoundings (**EMNLP-findings 2023**)

Changwoo Chun, SongEun Lee, Jaehyung Seo, Heui-Seok Lim

Beyond Candidates: Adaptive Dialogue Agent Utilizing Persona and Knowledge (**EMNLP-findings 2023**)

Jungwoo Lim, Myunghoon Kang, Jinsung Kim, Jeongwook Kim, Yuna Hur, Heui-Seok Lim

Explore the Way: Exploring Reasoning Path by Bridging Entities for Effective Cross-Document Relation Extraction (**EMNLP-findings 2023**)

Junyoung Son, Jinsung Kim, Jungwoo Lim, Yoonna Jang, Heui-Seok Lim

Doubts on the reliability of parallel corpus filtering (**Expert Systems with Applications, 2023**)

Hyeonseok Moon, Chanjun Park, Seonmin Koo, Jungseob Lee, Seungjun Lee, Jaehyung Seo, Sugyeong Eo, Yoonna Jang, Hyunjoong Kim, Hyoung-gyu Lee, Heuseok Lim

Towards Diverse and Effective Question-Answer Pair Generation from Children storybooks (**ACL2023-findings**)

Sugyeong Eo, Hyeonseok Moon, Jinsung Kim, Yuna Hur, Jeongwook Kim, SongEun Lee, Changwoo Chun, Sungsoo Park, Heuseok Lim

PEEP Talk: A Situational Dialogue-based Chatbot for English Education (**ACL2023-findings**)

Seungjun Lee, Yoonna Jang, Chanjun Park, Jungseob Lee, Jaehyung Seo, Hyeonseok Moon, Sugyeong Eo, Seounghoon Lee, Bernardo Yahya, Heuseok Lim

Award and Honors

Best Paper Award, The 35th Annual Conference on Human and Cognitive Language Technology (HCLT), 2023

Ministry of Science and ICT Award, ICT Challenge 2023

Seoktop Technology Award, Korea University, 2023

Ministry of Science and ICT Award, ICT Challenge 2022

Seoktop Technology Award, Korea University, 2022

Excellence Award, Competition for best practices of industry-academia cooperation, Ministry of Education, 2021

Best Paper Award, the 33th Annual Conference on Human and Cognitive Language Technology (HCLT), 2021

Seoktop Technology Award, Korea University, 2021

Institute for Information & communication Technology Planning & evaluation IITP Award, ICT Colloquium, 2020

Seoktop Technology Award, Korea University, 2020

The Research Grant, The Okawa Foundation for Information and Telecommunications, 2020

Grand Award, AI for Accessibility Hackathon, Microsoft Korea, 2019

Grand Award, ITRC Global Makeathon, Ministry of Science and ICT, 2019

Best Paper Award, the 31th Annual Conference on Human and Cognitive Language Technology (HCLT), 2019

Participation Prize, Korean Language Information Processing System Competition, Korean Institute of Information Scientists and Engineers, 2019

Bronze Prize, Korean Language Information Processing System Competition, Korean Institute of Information Scientists and Engineers, 2018

Excellence Award, Samsung AI Forum, 2018

Gold Prize, Korean Language Information Processing System Competition, Korean Institute of Information Scientists and Engineers, 2017

Best Paper Award, The Korea Convergence Society, 2012

Achievement Award, Korea Society for Internet Information, 2012

Researcher Award, KAIS(Korea Academia-Industrial cooperation Society), 2009

Books and Book chapters

2023. 05 Natural Language Processing Bible - Principles of ChatGPT
2019. 12 Natural Language Processing Bible - Theory, Applied System, Deep Learning
2017. 03 Computational Thinking for Novice
2011.09 Search Engine: Information Retrieval in Practice
2010.08 Please help! We've got the iPhone 4
2010.05 Please help! We've got the iPhone 3
2010.03 Data Structures and Algorithm Analysis in C++
2009.04 The Handbook of East Asian Psycholinguistics-volume III. Korean (Cambridge University Press):
Part II. Language Processing: A computational model of lexical and morphological processing in Korean

COMMITTEES

- 2022.10 The 1st Workshop on Customized Chat Grounding Persona and Knowledge (COLING 2022),
Workshop Chair
2018.03 ~ 2023.02 The International Conference on Interdisciplinary research on Computer Science,
Psychology and Education (ICICPE), General Chair
2015.07 The 5th International Conference on Convergence Technology, Program Committee
2013.07~2014.07 The International Conference on Convergence Technology, Program Chair
2010.03~2012.06 The 50th Annual Meeting of the ACL(ACL2012), Local Arrangements Committee
2011.03 ~ 2011.12 International Conference on Internet, Program Chair
2010.08 ~ 2011.06 The 6th Europe Asia Pacific International Conference on Information Science and
Technology, (EAPIC-IST2011), Program Chair
2010.08 ~ 2010.10 Conference of Korean Association of Computer Education, Program Chair
2010.03 ~ 2010.12 International Conference on Internet, Workshop Chair
2009.03 ~ 2009.12 International Conference on Internet, Publication Chair
2009.12 ~ 2009.12 The Korea Academia-industrial cooperation Society, Direct Assistance Chair
2009.10 ~ 2009.12 Korean Society for Internet Information Conference, General Chair
2009.12 ~ Present Korea Copyright Commission, Advisory Member
2009.03 ~ 2010.02 Korean Society for Internet information, Editorial Board

TEACHING

Machine Learning & Natural Language Processing

The lecture was for the theory and practice from basic to advanced machine learning and natural language processing.

AI-ML-Deep Learning based NLP

This course is a practical lecture on the theory of AI / ML / DL of natural language processing and the recent techniques of the paper.

Based on natural language processing and deep learning

Core theories and analysis methodologies needed to solve problems by leading AI and Big Data projects.

AI/ML/DL & NLP

The basics of AI / ML / DL application of natural language processing and how they are applied to real life.

Natural Language Processing and Language Intelligence Basic Curriculum

The basics of Deep Learning technology for natural language processing along while focusing on recent research.

AI Machine Learning Basic Curriculum

This curriculum consists of the basic theories of machine learning, machine learning tool kit learning, and practical examples for practical application.

Natural Language Processing Applications

Covers the basics of Deep Learning technology for natural language processing along while focusing on recent research papers to understand latest trends in advanced technology.

Educational Data Mining

Review the current techniques for educational data mining. Understanding fundamental principles of educational data mining and its applications.

Information Retrieval

This class covers basic theories of information retrieval and techniques to implement a practical information retrieval engine. The topics are information retrieval models, text processing techniques, indexing techniques, information theories, and applications of IR, which are vital to data mining and big data analysis.

Natural Language Processing

This class covers the advanced topics in natural language processing including statistic language processing, language modeling, and machine translation.

Patents

International Patent

Device and method for extracting dialogue-based relation extraction based on utterance-level computation over graph structure, 2024

Device and method for extracting dialogue-based relation using cloze-style masking with prompts for entity types and relational information, 2023

Method and device for determining similarity of programming codes based on cross-validation ensemble and filtering strategy, 2023

Method for generating training data and method for post-processing of speech recognition using the same, 2022

Dialogue performing system, apparatus and method thereof, 2021

Apparatus, method and system for determining answer regarding question. 2021

Method of building training data of machine translation. 2020

Apparatus and method for providing changeable controller user interface based of user information and contents attribute, 2017

System for mining biometric data to predict programmer expertise and task difficulty, 2017

Domestic Patent(registration)

Device and method for constructing dataset in Korean document-level relation extraction, 2024

Device and method for parallel corpus filtering based on semantic similarity, 2023

Device and method for generating of training data for quality estimation in machine translation, 2023

Apparatus and method for generating language based on commonsense reasoning, 2023
Apparatus for corpus processing, apparatus and method and machine translation, 2023
Method for generating training data and method for post-processing of speech recognition using the same, 2023
Noise canceling device for companion animal and method using same, 2023
Apparatus, method and system for determining answer regarding question, 2023
Generating method of model measuring document similarity and measuring method for document similarity using the same, 2023
Dialogue performing system, apparatus and method thereof, 2023
Apparatus and method for outputting image corresponding to language, 2023
Device and method for correcting Korean spelling 2022
Method of translating ancient Korean using machine translation 2022
Method of building training data of machine translation 2022
Correction performance evaluation metrics of neural network machine translation and method of constructing the same, 2022
Device and method for automatic fake news detection, 2021
Apparatus, method and system for processing dialogue with regard to image, 2021
Device for automatic question answering, 2021
Method and apparatus for modeling based on cognitive response of smart senior, 2020
Device and method for providing personalized UX/UI service for broadcast standard, 2019
Method and apparatus for sharing experience based on internet of things, 2018
Method and apparatus for mediation of food delivery, 2018
Method and apparatus for spotting fake news using collective intelligence, 2018
Customized screening method and apparatus using collective emotions, 2018
Smart chair based on IoT and method of analysis of seated posture, apparatus and method for managing smart chair, 2018
Method and apparatus for managing loan based on the internet of things, 2017
Smart flowerpot based on internet of thing and management system for the same, 2017
System for judging attention concentration of online learning and method the same, 2017
Method for composing automatically to humanities data, 2017
Method and apparatus for interpretation of dreams by using collective intelligence, 2017
System and method for a learning course automatic generation, 2017
Method for developing based on user's participating, 2017
Method for intelligent learning managing, 2017
Mento recommend method using electronic desk, 2016
Cognitive abilities measurement apparatus and cognitive abilities measurement method, 2013
System and method for studying foreign language based on cognitive function of learners, 2012
Diagnosis system and method of cognitive function for foreign language learners, 2012
System and method for performing learning challenges for foreign language learners, 2011
System of generating intelligent end word based on realistic language using aspect, 2011
Apparatus for diagnosing anomia, 2008

Domestic Patent

Device and method for generation of diverse question-answer pair, 2024
Device and method of providing mental healthcare service for older people, 2023

Device and method of predicting cognitive function and psychological distress using autobiographical memory, 2023

Device and method for generating Korean commonsense knowledge graph using large language model, 2023

Device and method for generation using super in-context learning, 2023

Device and method for image-text retrieval based on contrastive language-image pre-training-adapter, 2023

Language model generating method by reinforcement learning from human feedback without human labor, 2023

Device and method for synonyms/antonyms-based data augmentation for training ToEIC problems solving model, 2023

Device and method for Korean data augmentation based on contrastive learning and morpheme combination, 2023

Device and method for explainable fake news detection using question answer pair generation, 2023

Device and method for persona-knowledge grounded dialogue for candidate-free situation, 2023

Device and method for constructing a dataset to detect critical errors in machine translation, 2023

Device and method of post-hoc utterance refining by entity mining for faithful knowledge grounded conversations, 2023

Device and method for assessment of educational question-answering, 2023

Device and method for generating a Korean grammatical error correction dataset based on synthetic data, 2023

Device and method of tracing knowledge using difficulty information for English proficiency assessment, 2023

Device and method for cross-document relation extraction using reasoning path extension, 2023

Ai-based interactive book recommendation Chatbot, 2023

Diverse and effective question-answer pair generation system for education, 2023

A colloquial-based translation model for simultaneous translation, 2022

Device and method for extracting dialogue-based relation extraction based on utterance-level computation over graph structure, 2022

ToEIC model using data augmentation techniques, 2022

Device and method for benchmark dataset robustness analysis using loss-adjusted, 2022

Device and method for domain adaptation tokenization, 2022

Device and method for detecting machine translation critical error based on prompt, 2022

Device and method for generating fortune telling model based on conditional generation deep-learning, 2022

Device and method for generating conversational model using knowledge and persona, 2022

Device and method for extracting dialogue-based relation using cloze-style masking with prompts for entity types and relational information, 2022

Device and method for generating Korean language model with cross-lingual post training, 2022

Device and method for detecting fake news utilizing user information, 2022

Method and device of code similarity judgment of programming languages based on cross-validated ensemble and filtering strategy, 2022

Device and method for numerically-aware machine reading comprehension question and answer, 2022

Device and method for generating Korean commonsense reasoning dataset, 2022

Contrastive learning-based word sense disambiguation model to understand lexical semantic networks, 2022

Task decomposition method based prediction of return on advertising spend and device performing the same, 2022

Korean relation extraction model and method with entity position information, 2022

Method and apparatus for generating a conversation based on a user's persona and knowledge data, 2021

Apparatus of generating query and method thereof, 2021
Named entity recognition apparatus and method thereof, 2021
Pet service recommending electronic apparatus and recommending method therefor based on 2-filtering, 2021
Device and method for generating dialogue based on pre-trained language model, 2021
Apparatus of obtaining response based on semantic similarity and method thereof, 2021
Development of Korean relationship extraction model reflecting Korean characteristics, 2021
Device and method for generating training data for automatic post editing, 2021
Device and method for generating optimal translation subtitle using quality estimation, 2021
Improving speech recognition performance using TTS in domain-specific environment, 2021
Multi-domain autonomous growth AI-based dialogue system, 2020
Multi-modal message aggregation for Korean visual question answering, 2020
Methods for resolving challenges in multi-class Korean sentiment analysis, 2020
Cross-lingual transfer of pre-trained transformers, 2020
Punctuation mark filler on Korean sentences using deep learning, 2020
Fast punctuation mark filler on Korean sentences using convolutional neural network, 2020
Autonomous driving robot for measuring radioactivity, 2020
Deep learning based multi-modal emotion recognizer, 2020
Meaningful representations using symbolic graphs, 2020
Zero-shot image sub classification via isolated features, 2019
Artificial intelligence based verbal speech recognition, 2019
Cross-validated ensemble methods, 2019
Priority based user order identification system, 2019
Domain adaptive training Bert for response selection, 2019
An analytical framework for automatically extracting formal information from unstructured security intelligence report, 2019
Unsupervised automatic document summarization using deep sentence representation, 2019
System of automatic summary and personal information management for privacy policy, 2019
Noise canceling necklace for pets using machine learning, 2019
An interactive approach to word sense disambiguation using word vector similarity, 2019
Method of intelligent preferred fashion recommendation using user profiling, 2019
An adaptive computational thinking game, 2019
Global relation extraction model for Korean documents, 2018
Method and system for outputting customized content using profile based on online activity of smart senior, and smart senior portal management server using the same, 2018
Terminal apparatus and method for searching image using deep learning, 2018
Method for recommending preferred fashion using user profiling, 2018
Apparatus and method for recommending customized content for smart senior, 2018
Device and method for providing a personalized banner advertising platform, 2017
Method and apparatus for cognitive modeling for user, 2017
Emotion-based sound control device and control method, 2017
Minimum learning judgement method and minimum learning judgement device, 2016
System for developing moot model, 2016
Apparatus and method for providing custom banner advertise platform, 2016
Method and apparatus for rating the reputation of digital contents, 2016
Personalized UX/UI providing device for broadcast standard and method thereof, 2016

Apparatus and method for providing changeable controller user interface based of user information and contents attribute, 2016
System for mining biometric data to predict programmer expertise and task difficulty, 2016
Method for stabilizing deep neural network using residual network, 2016
Method and system for preventing bank fraud, 2015
Tagging method and system based on task for digital study contents, 2015
Method and system of feeling share using text expression for user terminal, method and system of sympathy game using text expression for user terminal, 2015
Tag information collecting method and system for digital contents, 2015
Profile generating method of user terminal, 2015
Application recommend method for user on demand, 2014
Wisdom construction method, 2014
Apparatus and method of measuring personality based on brain wave, 2011
Emotional response measurement apparatus and emotional response measurement method, 2011
Apparatus and method for playing a game using a brain wave, 2010
System and method for generating learning challenges for foreign language learners, 2009

Technology Transfers Agreements

Vector embedding construction and similarity search source technology development and prompting know-how, 2024
Integrated data analytics and optimization technology for building advanced metadata-driven recommendation systems, 2023
Gaon-Large Language model, 2023
Foundational technology of question-answering utilizing search-augmented generation technique, 2023
Foundational technology of question-answering based on Retrieval-Augmented Generation (RAG), 2023
Qode-Large Language Model, 2023
Customization technology of Deep Learning models, 2023
Development of an interactive book recommendation terminal through AI-based voice analysis, 2023
Online comment reputation classification system, 2022
Development of Sentence-based Semantic Similarity Search technology model, 2022
System and Method for Studying Foreign Language Based On Cognitive Function of Learners, 2022
Online Comment Reputation Inquiry System, 2022
Foundational technology of artificial intelligence matching, 2022
Artificial intelligence recommendation algorithm, 2022
Advanced development of MRC question-answering technology, 2022
User classification model and artificial intelligence technology for predicting marketing performance (membership registration, purchase conversion, etc.) and advertising solutions, 2022
Natural language processing technology for AI Avatar, 2022
Advanced development of MRC question-answering technology, 2021
Advanced development of MRC question-answering technology and AI-based VOD recommendation algorithm technology, 2021
System and Method for Performing Learning Challenges for Foreign Language Learners, 2021
Topic recommendation technology through user profiling, 2021
Online reputation inquiry system for pet service providers (hospitals, pharmacies, grooming, cafes, etc.), 2021
Intelligent emotional analysis and conversation technology linked to human olfactory care system, 2021
Foundational technology of deep learning-based automatic question-answering system, 2021

Method and Apparatus for Managing Loan based on the Internet of Things, 2021
IoT-based loan management method and device, 2021
System for Judging Attention Concentration of Online Learning and Method the Same, 2021
Natural language chatbot service for lifelong health check-ups, 2021
Similar document search technology using deep learning, 2020
Morphological analysis technology and named entity recognition technology for natural language summarization processing, 2020
Deep learning-based automatic question-answering system technology, 2020
Deep learning-based automatic question-answering system foundational technology, 2020
Cerebral blood flow image recognition and interpretation result dialog source technology, 2020
Article similarity recommendation and key phrase extraction technology within documents, 2020
Image search terminal device and method using deep learning, 2020
Learning-based query processing technology, 2020
Noise canceling necklace for pets using machine learning, 2019
Intelligent dementia rehabilitation training technology, 2019
Natural language-image cross-modal embedding and search technology, 2019
Neural network compression technology using parameter coefficients, 2019
Intelligent classification technology, 2019
Korean entity name recognizer and dependency parser, 2019
Smart Chair based on IOT and Method of Analysis of Seated Posture, Apparatus and Method for Managing Smart Chair, 2019
Voice-based Korean and English similar word matching technique, 2019
Intelligent Fashion Image Retrieval System, 2019
Korean Object Identification System Using Deep Learning Technique, 2018
Online content recommendation technology using deep learning techniques, 2018
Korean Object Identification System Using Deep Learning Technique, 2017
Content recommendation system using deep learning technique, 2017
Multi-modal information indexing technology in video, 2016
Recommendation system using user contents consumption information, 2016
Recommendation model using the hysteresis Markov model, 2016
Search technology dedicated to digital content, 2015
Online Collaborative Learning Platform, 2015
Responsive web-based social learning service platform, 2014