Jongmoon **Ryu**

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"The people who are crazy enough to think they can change the world are the ones who do."

Education

Gachon University   *Seong-Nam, Korea*

B.S. IN SOFTWARE ENGINEERING   *Mar. 2018 - Feb. 2025*

- Total GPA of 3.99 / 4.5, Major GPA of 4.21 / 4.5 (Credits taken : 98/120)

Experience

2024 Mathematics for AI   *Seong-Nam, Korea*

TEACHING ASSISTANT   *Mar. 2024 - PRESENT*

- Assisted in teaching linear algebra and optimization theory for deep learning.
- Provided explanations for assignments and created example solutions.

LaTrobe & Monash University Lab. Internship   *Melbourne, Australia*

LABORATORY INTERNSHIP   *Jan. 2024 - Feb. 2024*

- Learned a concept and implementation of Geospatial Database Processing using PostGIS, QGIS, Spatial SQL
- Completed two geospatial projects including analyzing the movements of the elderly in Seoul.
- Got a Runner Up Project Award 2024 within laboratory groups.
- Co-advised by Prof. Wenny Rahayu and Prof. David Taniar.

2023 Algorithm   *Seong-Nam, Korea*

TEACHING ASSISTANT   *Sep. 2023 - Dec. 2023*

- Introduction to algorithm problem-solving methods and strategies for students.
- Lectures and mentoring sessions for passing corporate coding tests.
- Grading of assignments and exams conducted during lectures.

ISNLP Lab, Gachon University   *Seong-Nam, Korea*

RESEARCH ASSISTANT   *Sep. 2023 - Dec. 2023*

- Presentation of recent research trends in TTS (Text-to-Speech) synthesis.
- Study on speech synthesis papers enabling emotion control through labeled or referenced audio.
- Advised by Prof. Sangwoo Kang in Gachon Univ.

Smilegate AI Membership 3rd   *Pangyo, Korea*

AI ENGINEER & BACKEND ENGINEER   *Jun. 2023 - Nov. 2023*

- Led a personalized custom audiobook speech synthesis project utilizing FastSpeech2 and RVC models.
- Modified the model to extract user voice features using a small amount of audio data.
- Developed using AWS instances such as Sagemaker, EC2, and RDB (Supported by MegaZoneCloud).
- Selected as an outstanding project.

SIL Lab, Gachon University   *Seong-Nam, Korea*

RESEARCH ASSISTANT   *Mar. 2023 - Jul. 2023*

- Study of papers on (Knowledge) graph-based recommendation systems.
- Advised by Prof. Jaeyoung Choi in Gachon Univ.

Naver Boostcamp AI Tech 3rd   *Seoul, Korea*

RECOMMENDER SYSTEM TRACK   *Jan. 2022 - Jun. 2022*

- Studied fundamental and advanced topics in deep learning, focusing on recommender systems.
- Participated in 3 competitive projects and 1 final project on graph-based recommender systems.
- Contributed to community by writing outstanding competition posts in internal competitions.

R.O.K Army, 1st Logistics Support Command   *Wonju, Korea*

BATTLEFIELD OPERATING SYSTEM MANAGER (COMPULSORY MILITARY SERVICE)   *May. 2020 - Nov. 2021*

- Revamped the unit's homepage for enhanced user convenience (from IE-based to Chrome-based).
- Identified and proposed the unit's internal network issues, leading to the completion of network infrastructure rebuilding.
- Managed server system backups and maintenance.

Burton and South Derbyshire College   *West Midlands, United Kingdom*

Winter Language Course Student   *Jan. 2020 - Feb. 2020*

- Accepted to Gachon University's overseas language program in 2020 winter semester.

Projects

Sing To Me: Singing Voice Conversion   *Gachon Univ.*

Team Leader   *Mar. 2023 - PRESENT*

- A capstone design project conducted over three semesters at Univ.
- Developed a project for changing vocal voices in music.
- Integrated the RVC model for voice conversion with the VITS model for speech synthesis.
- Utilized the UVR model to accurately separate vocals and MR, and performed voice conversion using the RVC model.

Audio Book for kids using Personalized TTS System   *Smilegate AI Membership*

Team Leader   *Jun. 2023 - PRESENT*

- A project undertaken during the Smilegate AI Membership period.
- Created audio book content based on text using a small amount of parental voice data.
- Developing a speech synthesis system incorporating emotions by extracting emotion labels from text.
- Created audiobooks using the FastSpeech2 model and performed voice conversion to parental voice using the RVC model.

Gachon Go: An On-Campus Delivery Service   *Gachon Univ.*

Team Leader   *Mar. 2023 - Jul. 2023*

- Term project conducted in the "Mobile Programming" course offered during the spring semester of 2023.
- Developed an application using Kotlin to implement a delivery system for on-campus students.
- Integrated Kakao payment system, implemented services on AWS, and incorporated real-time location services using Naver Maps API.
- Selected as an outstanding project in the entire class and presented at an department's event.

What's In Your Closet: A Fashion Recommender System   *Naver Boostcamp*

Team Member   *May. 2022 - Jun. 2022*

- Final project completed during Naver Boostcamp AI Tech.
- Developed a clothing recommendation service based on existing clothing using the LGCN model, a graph-based recommender system.
- Automated data collection and preprocessing processes, developed in a cloud environment using Google Cloud Platform (GCP).
- The Light GCN model identifies interaction patterns between clothing items and recommends new items.

DKT: Deep Knowledge Tracing   *Naver Boostcamp*

Team Member   *May. 2022 - Jun. 2022*

- Competition style project completed during Naver Boostcamp AI Tech. (2nd Place / 22 Team)
- Task involved tracking users' problem-solving history to predict future problem-solving outcomes based on their knowledge state.
- Ensemble of Decision Tree and LSTM-Attention models.
- Enhanced LSTM-Attention model to focus more on history with similar problem tags for predictions.

Movie Recommendation   *Naver Boostcamp*

Team Member   *Apr. 2022 - May. 2022*

- Competition style project completed during Naver Boostcamp AI Tech. (3rd Place / 25 Team)
- Recommending personalized movies to users based on their viewing history and movie attributes.
- Built a recommendation system by ensembling BERT4Rec, Multi-VAE, and S3-Rec models.

Mask Wearing Classification   *Naver Boostcamp*

Team Member   *Apr. 2022 - Apr. 2022*

- Competition style project completed during Naver Boostcamp AI Tech. (4th Place / 57 Team)
- Project classifying mask-wearing status during the COVID-19 era.
- Employed FaceNet, EfficientNet, and data augmentation techniques to achieve significant performance improvement.
- Implemented CutMix technique and FaceCrop methodology, yielding positive results.

Scholars & Awards

Scholars

2024	**International Internship Program,** 2024 Winter semester internship at LaTrobe and Monash University		*SW Centric Univ.*
2024	**Academic Excellence,** Awarded to students with high achievements throughout the semester (Fall)		*Gachon Univ.*
2023	**Academic Excellence,** Awarded to students with high achievements throughout the semester (Spring)		*Gachon Univ.*
2020	**Academic Excellence,** Awarded to students with high achievements throughout the semester (Fall)		*Gachon Univ.*
2019	**Academic Excellence,** Awarded to students with high achievements throughout the semester (Spring)		*Gachon Univ.*
2019	**Exchange student,** Language course at United Kingdom		*Gachon Univ.*

Awards

2024	**2nd Place**, Analyzing the movements of the elderly in Seoul	*LaTrobe Univ.*
2023	**Excellence Prize**, Gachon Univ. Department of AI Software's Day Event 2024 (Open Source)	*Gachon Univ.*
2023	**Excellence Prize**, Gachon Univ. Department of AI Software's Day Event 2024 (Mobile Programming)	*Gachon Univ.*
2018	**1st Place**, Gachon Han-maum Programming Contest	*Gachon Univ.*

Extracurricular Activity

GDSC(Google Developer Student Club) Gachon   *Seong-Nam, Korea*
MEMBER   *Jun. 2023 - PRESENT*
• Participated in a study on emotion embedding in natural language processing.

Pay1oad   *Seong-Nam, Korea*
MEMBER & CORE MEMBER FOR ALGORITHM PART   *Sep. 2018 - Dec. 2019*
• Learned web hacking and reverse engineering.
• Led algorithm study group as a study group leader for one year, conducting algorithm lectures.

Skills

Languages	Korean(native), English(intermediate), Japanese(intermediate)
Programming	Python, JAVA, C/C++, LaTeX
Frameworks	PyTorch
DevOps	AWS, Docker

Others

TOEIC	840
Certificate	SQLD (SQL Developer)
Certificate	KT AICE (AI Certificate for Everyone) - Associate
Algorithm	Baekjoon Online Judge 1780 solved