Woo-Joo Jang

High-School Student

Personal Data

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Work Experience

Student Council
(Aug 2025 to Jul 2025)

Department of Science, Hasung Science High School, Korea

- Haneuljae project
  - Developed and launched a website that attracted approximately 500 unique users within 24 hours of deployment
  - Implemented real-time commenting and advertisement banner systems using database integration
  - Built authentication functionality using Next.js and DynamoDB

- Automated a peer mentoring matching system using MCMF
  - Embedded and tagged user survey responses to construct structured preference data
  - Designed and optimized a custom scoring function using backpropagation-based adjustments
  - Achieved over 93% satisfaction rate from

Club leader
(Aug 2024 to Dec 2025)

ESC(Programming Club),
Hansung Hasung Science High School, Korea

- **Developed and demonstrated a CTF challenge for middle school students based on steganography techniques**
  - Designed problems based on steganography, including Least Significant Bit (LSB) encoding
  - Explained underlying principles and decoding methods through technical presentations
  - Authored editorial solutions and post-event explanations for participant

- **Developed an online judge system for club member selection**
  - Built a scalable DevOps infrastructure using AWS services including ECR, EKS, ElastiCache, Lambda, and S3
  - Designed a flexible data architecture allowing dynamic modification of problems, test cases, and difficulty tags

Education

Hansung Science High School (Mar 2024-)	Department of Science, a selective institution for gifted students, dedicated to nurturing creative scientific talent and fostering innovation, leadership, and social responsibility.
KAIST IP CEO (Dec 2022 to May 2024)	KAIST IP-CEO is an educational program for gifted students focused on intellectual property (IP) and entrepreneurship.

Rewards

Bronze Prize and Popularity Award, Seoul Metropolitan Office of Education, Dec 2025.

- Developed an AI system to predict the real-time path of the opposing jungler in League of Legends, targeting high positional similarity
- Implemented and trained an LSTM-based model for sequential movement prediction, later enhancing performance by integrating Transformer architecture
- Achieved 83.4% path similarity accuracy in predicting opponent movement trajectories

Excellence Award, Seoul City Science Fair (Finalist Round),
Seoul Metropolitan Office of Education, April 2025

- Developed a buoy-based microplastic collection device using electrolysis-generated microbubbles
- Conducted comparative analysis with conventional filtration methods, achieving ~50% higher collection efficiency

Recipient of Three All-Times Awards at the School Research Competition

- Explored optimization and learning mechanisms through genetic algorithm-based approaches
- Investigated theoretical limitations of deep learning architectures
- Mathematically demonstrated model collapse phenomena in Transformer-based models

Skills

Pytorch/CUDA	■■■■■□□	React	■■■■■■□
KiCad	■■■■■■□	AWS	■■■□□□□