# HOJUN **CHOI**

SW Engineer & AI Researcher, OPEN TO WORK

*40, Geumgwang-ro, Jungwon-gu, Seongnam-si, Gyeonggi-do, South Korea*

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## Research Interests

**Computer Vision** **3D Vision** **Object Detection** **Large Language Model**

## Tech Stack

### Programming Languages

Python | C | R | SQL

### Frameworks

PyTorch | TensorFlow

## Education

**University of Wisconsin-Madison** *Madison, WI*

B.S IN COMPUTER SCIENCE AND DATA SCIENCE *Dec. 2022*

- GPA: 3.9/4.0

## Publication

### CONFERENCES

C1 S. Park, ***H. Choi***, and U Kang. "Knowledge-preserving Pruning for Pre-trained Language Models without Retraining," Neural Information Processing Systems (**NeurIPS**) 2023 Conference Submission, May 2023.

## Honors and Awards

2022 **Top 10% in Predicting Autonomous Sensor Antenna Performance, LG Research AI Hackathon** *South Korea*

2022 **Nominated for Developing User-friendly Online History Search Chrome Extension, Hatathon** *Madison, WI*

2022 **Dean's List for All Semesters Attended in Recognition of Exceptional Academic Excellence** *Madison, WI*

2017 **Dean's List for All Semesters Attended in Recognition of Exceptional Academic Excellence** *Albany, NY*

## Professional Experience

### The Korea Advanced Institute of Science and Technology (KAIST) *Seoul, South Korea*

AI Research Intern, Advisor: Prof. Insik Shin *Sep. 2023 - Present*

- *Integrated and implemented LLM technology in multi-device applications.*
- *Proposed new ideas and participated in future research projects focused on extending the past projects.*
- *Research Assistant (RA) Activity.*

### Seoul National University *Seoul, South Korea*

AI Researcher, Advisor: Prof. U Kang *Jan. 2023 - July. 2023*

- *Specialized in AI model compression through quantization research.*
- *Contributed to a survey paper on lightweighting Transformer models using diverse quantization techniques.*
- *Co-authored a NeurIPS paper on model pruning, evaluating competing models and aiding with English translations.*

### University of Wisconsin-Madison *Madison, WI*

Undergraduate AI Research Intern, Advisor: Prof. Ran *Sep. 2022 - Dec. 2022*

- *Simulated CADS operational life cycle in CARLA environment.*
- *Validated collaborative automated driving algorithms with DETR.*

- *Developed and tested new models in custom CARLA environment.*

**University of Wisconsin-Madison** *Madison, WI*

Academic Mentor, Employer: Maisee Her *Sep. 2021 –Dec. 2022*

- *Diligently mentored my mentees through academic counseling, resource sharing, and a sincere dedication to their success.*
- *Enhanced proficiency in crucial AI domains including Linear Algebra, Artificial Intelligence, Human-Computer Interaction, and C Programming.*

## Projects

**Object Detection for Autonomous Driving using DEtection TRansformer** *Madison, WI*

Implemented end-to-end detection techniques for large objects in the CARLA environment. *Sep. 2022 - Dec. 2022*

**CARLA Research Team Project** *Madison, WI*

Developed a comprehensive workflow for the Sensing·Perception Group CADS System using the CARLA simulator. *Sep. 2022 - Dec. 2022*

**Database Development** *Madison, WI*

Understood core techniques of DBMS and constructed a database structure for real-world problems using MySQL. *Sep. 2022 - Dec. 2022*

**Visitory** *Madison, WI*

Developed a user-friendly interactive internet history search Chrome extension. *Jan. 2022 - May. 2022*

**Operating Systems** *Madison, WI*

Explored MapReduce, memory encryption, file systems, lottery scheduler, shell, and xv6 kernel threads. *Jan. 2022 - May. 2022*

**Data Modeling with Python & R** *Madison, WI*

Explored data visualization, version control, A/B testing, classification, clustering, optimization, simulation techniques, and more. *Jan. 2022 - May. 2022*

**Human-Computer Interaction Report Papers** *Madison, WI*

Explored IT support interactions at LTG helpdesk, Memorial Library. Various methods used. Details in processbook. *Sep. 2021 - Dec. 2021*

**Cardiovascular Disease Risk Factor Analysis** *Madison, WI*

Examined causal relationships among variables using statistical models and visualized results through graphs in R. *Sep. 2021 - Dec. 2021*

**COVID-19 Self-Checker** *Madison, WI*

Developed a simple self-diagnostic analysis CPP software for COVID-19 symptoms. *Jan. 2021 - May. 2021*

**A Free Website for Short-Term Memory Testing** *Madison, WI*

Implemented a multi-threaded timer in the back end and enabled parsed data transfer among pages through RestAPI. *Sep. 2020 - Dec. 2022*

**Time Clock System** *South Korea*

Designed C# Windows software for employee attendance tracking, utilizing a MYSQL-based database with SQL. *Jan. 2019 - May. 2019*

**Unity Games Development** *South Korea*

Created game architectures and optimized graphics performance by batching game objects within the hierarchy. *May. 2018 - Aug. 2018*

**Automation System Development** *South Korea*

Analyzed data assignment patterns by component in the company's platform and developed software for multilingual tasks. *Feb. 2018 - May. 2018*

## Teaching

### PRIVATE TUTOR, REMOTE, OCTOBER 2022 – PRESENT

| | |
|---|---|
| Summer 2023 | Mathematical Statistics with Applications, graduate-level |
| Spring 2023 | Mathematical Statistics with Applications, graduate-level |
| Spring 2023 | English Speaking Tutoring, Intermediate-level |
| Fall 2022 | Linear Algebra, undergraduate-level |

### ACADEMIC MENTOR, UW-MADISON, MADISON, WI, SEPTEMBER 2021 – DECEMBER 2022

| | |
|---|---|
| Fall 2022 | Introduction to Human Computer Interactions (CS570), undergraduate-level |
| Fall 2022 | Introduction to Artificial Intelligence (CS540), undergraduate-level |
| Spring 2022 | Elementary Matrix and Linear Algebra (CS340), undergraduate-level |
| Spring 2022 | Introduction to Computer Systems (CS354), undergraduate-level |
| Spring 2022 | Programming III (CS400), undergraduate-level |
| Fall 2021 | Elementary Matrix and Linear Algebra (CS340), undergraduate-level |
| Fall 2021 | Introduction to Computer Engineering (CS252), undergraduate-level |

# Professional Activities

## COMMUNITY SERVICE

**English Translation, NAVER Knowledge iN** — *Remote*

Online Freelance English Translation Expert — *May. 2022 - Present*

## CERTIFICATIONS

**NLP Development Program, Seoul ICT Innovation Square** — *Remote*

Trainee — *July. 2022 - Sep. 2022*

**Machine Learning A-Z: Hands-on Python And R, Udemy** — *Remote*

Trainee — *Aug. 2022 - Aug. 2022*

**Machine Learning Practical Development: 8 Practical Projects, Udemy** — *Remote*

Trainee — *Aug. 2022 - Aug. 2022*

**LG Aimers, LG AI Research** — *Remote*

Trainee — *July. 2022 - Aug. 2022*

**AI Engineering Program, Seongnam Industry** — *Remote*

Trainee — *July. 2022 - Aug. 2022*

**Intensive English Language Program (IELP), University at Albany-SUNY** — *Albany, NY*

Trainee

## ORGANIZATIONS

**CAVH Graduate Student Research Group, University of Wisconsin-Madison** — *Madison, WI*

Member

**Computer Science Undergraduate Research Group, University of Wisconsin-Madison** — *Madison, WI*

Member

**Student Software Development Club, University of Wisconsin-Madison** — *Madison, WI*

Member

# References

**References are provided upon request.**