

# Minseo Choi

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## PROFESSIONAL SUMMARY

Results-driven Computer Science sophomore at Johns Hopkins University with hands-on expertise in machine learning research and hackathons. Currently expanding into ML compilation and systems optimization with a strong focus on engineering rigor and problem-solving. Proven leadership through service as a Republic of Korea Army Drill Instructor, where I trained and mentored 2,000+ recruits in high-pressure environments, demonstrating discipline and collaboration that translate into technical challenges.

## EDUCATION

### Bachelor of Computer Science

Johns Hopkins University

May 2028

Baltimore, MD

- 3.94/4.0 GPA
- Dean's List (2022-2023)
- Military Leave of Absence (2023-2025)

## PROJECTS

### LLVM Kaleidoscope Implementation | C/C++, LLVM

Apr 2025 – Jun 2025

- Developed a toy compiler implementing a lexer, parser, AST, LLVM IR generator, and JIT compilation, strengthening understanding of compiler internals
- Applied optimization passes (e.g. *mem2reg*, *instcombine*), demonstrating measurable improvements in execution efficiency visualized with LLVM-FLOW (an open-source CFG visualization tool)
- Translated academic concepts into practical systems skills, building confidence in applying low-level compiler design
- Project link : <https://github.com/minseoc03/llvm-kaleidoscope-playground>

### KO-EN Machine Translation | Python, PyTorch, Hydra, NumPy, Pandas

Feb 2025 – Mar 2025

- Engineered a Transformer-based NMT model, achieving 29.9 BLEU, exceeding baseline performance by ~9%
- Optimized training pipeline by leveraging Hydra for configuration management, reducing setup complexity and improving reproducibility across experiments
- Demonstrated ability to design, train, and evaluate ML models independently, applying both research-driven methods and engineering discipline
- Project link : <https://github.com/minseoc03/ko-en-translation>

## WORK EXPERIENCE

### Drill Instructor / Senior Squad Leader

Republic of Korea Army

Oct 2023 – Apr 2025

Nonsan, Republic of Korea

- Trained and mentored 2,000+ recruits, fostering teamwork, resilience, and discipline under high-pressure conditions
- Led a team of drill instructors as Senior Squad Leader, coordinating large-scale training operations with precision and accountability
- Built transferable leadership skills in mentorship, collaboration, and performance under stress, directly applicable to technical team environments

## COMPETITIONS

### LG Aimers 6 Hackathon – Infertility Surgery Success Prediction

Jan 2025 – Feb 2025

- Ranked in the top 10% (164th of 1,570 participants)
- Engineered data preprocessing pipeline for raw real-world clinical datasets, addressing noise and missing values to enhance model inputs
- Developed ensemble ML models with Optuna-driven hyperparameter optimization, improving ROC-AUC by ~38% compared to baseline model

### LG Aimers 5 Hackathon – Display Defect Prediction

Aug 2024 – Sep 2024

- Ranked in the top 5% (62nd of 1,123 participants)
- Analyzed imbalanced manufacturing data and applied various tuning skills to mitigate severe class imbalance
- Implemented XGBoost with Optuna optimization, increasing F1-score by ~18% compared to baseline model

## TECHNICAL SKILLS

Languages | Python, C/C++

Frameworks & Libraries | PyTorch, Pandas, NumPy, Matplotlib, Hydra, LLVM, Optuna, Scikit-Learn