

# DOEUN LEE

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## EDUCATION

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### **The Ohio State University**

M.S. in Computer Science and Engineering  
GPA: 4.00/4.00  
Advised by Dr. Sachin Kumar

Aug 2024 - Current

### **The University of Texas at Austin**

B.S. in Computer Science  
GPA: 3.87/4.00  
Certificate: Applied Statistical Modeling  
Advised by Dr. Eunsol Choi and Dr. Amy Pavel

June 2020 - May 2024

## EXPERIENCE

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### **Graduate Research Assistant, *The Ohio State University***

October 2024 - Current

Advised by [Dr. Sachin Kumar](#). Researching the capabilities of large language models in scientific writing and domain-specific question answering.

- Co-Leading a study on the ability of text generation models in scientific writing and corresponding user behavior.
- Leading the creation of a benchmark dataset in the medical domain to assess the capability of LLMs in the domain-specific long-form question answering (LFQA) task.

### **Undergraduate Research Assistant, *UT Austin***

June 2023 - May 2024

Advised by [Dr. Eunsol Choi](#) and [Dr. Amy Pavel](#). Researched user behavior and perception in LLM-based and traditional search interfaces for question answering.

- Analyzed user information-seeking patterns across Google search and LLM-based interfaces.
- Led user study sessions and curated a dataset of 200 classified questions for behavioral analysis.
- Evaluated the similarity between the source and the user response using BERTScore and analyzed behavioral trends.

### **QA Test Engineer Intern, *SparkCognition***

May 2022 - Aug 2022

Involved in AI-driven analytics and solutions for various industries to enhance operational efficiency and data security.

- Built Dredd tests for backend API payload validation and contributed to debugging and QA workflows.
- Wrote both unit test and integration test scripts for verifying feature management APIs and fabric endpoint responses using Pytest.
- Collaborated in a scrum team of 7 as QA engineer for optimization of AI fabric hyperopt and auto-nbm service.

## AWARDS AND SCHOLARSHIPS

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### **KAAGA Next Generation Leadership Forum**

2023

Won 2nd place among 100 participants and was awarded a \$500 scholarship

### **Grace Hopper Celebration - UTCS Department Scholarship**

2022

Selected based on academic excellence and leadership qualities as women in technology.

## PROJECTS

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### Radiology And Data Augmented Classifier for X-ray

[Paper](#)

Explored the impact of anatomical segmentation masks on chest X-ray classification by fine-tuning BiomedCLIP under varied training to enhance model interpretability and diagnostic focus.

- Applied anatomical segmentation masks to chest X-rays to guide model attention toward clinically relevant regions during fine-tuning and inference.
- Designed and implemented two training strategies: (1) linear classifier fine-tuning with a frozen vision encoder, and (2) full model fine-tuning including the vision encoder.
- Demonstrated that segmentation masks serve as lightweight spatial priors, improving interpretability without requiring retraining on localized features.

### Adversarial Attacks for LLM and Defense Techniques

[Paper](#)

Examined the susceptibility of three Transformer-based models against adversarial examples and implemented two mitigation techniques for different real-world conditions.

- Investigated the robustness of BERT, RoBERTa, and ELECTRA to adversarial examples generated via TextFooler.
- Developed augmented training by combining original and adversarial examples, increasing adversarial test accuracy by 36%.
- Designed a weighted voting ensemble across three models to improve robustness under unknown adversarial conditions, achieving 76% accuracy without adversarial training.

### Analyzing and Mitigating Dataset Artifacts

[Paper](#)

Analyzed dataset artifacts in SQuAD using adversarial attacks, and mitigated them through augmentation of adversarial data and the original training data.

- Identified spurious correlations in the SQuAD dataset using adversarial attacks on ELECTRA-small.
- Enhanced the evaluation accuracy by 30.5% through combined training on adversarial and original data.
- Conducted manual evaluation of 50 sampled adversarial examples and categorized them by question types.

### Pancreatic Cancer Survival Prediction

[Google Colab](#)

Using dataset with patient information relevant to pancreatic cancer and its treatment, used diverse models and feature engineering after initial model run to predict survival of the patient.

- Preprocessed 3,171 patient records and applied feature engineering for survival prediction modeling.
- Compared models including Naïve Bayes, Random Forest, SVM, and Neural Networks, achieving 68% baseline accuracy.
- Improved accuracy to 72% by removing outliers using SVM then applying SMOTE for class balancing.

## ACTIVITIES

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### UT Austin Computer Science Transfers' Society, Officer of Outreach

2023 - 2024

Helped potential transfers prepare for CS transfer admission cycle.

### UT Austin Undergraduate Korean Association, Vice President of Informatics

2022 - 2023

Created and managed website for UKA and led a group of directors for yearlong publication project.

### UT Austin Korean Engineering Student Association, Vice President and Project Leader

2021 - 2022

Led weekly meetings with a group to teach web application development.

## SKILLS

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<b>Programming</b>	Python, Java, C, R
<b>Frameworks and Libraries</b>	PyTorch, Scikit-Learn, Pandas
<b>Language</b>	Korean (Native), English (Professional)