

**Siyi Gu**

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## EDUCATION

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**Stanford University**

Master of Science - Computer Science

*August 2023 - June 2025*

**Emory University**

Bachelor of Science - Applied Mathematics and Statistics, Computer Science(Highest Honors) GPA: 3.96/4.0

*Related coursework: Machine Learning, Artificial Intelligence, Computational Linguistics, Database Systems, Analysis of Algorithms, Linear Optimization, Human-Computer Interaction, Numerical Analysis, Statistics*

*August 2019 - May 2023*

## RESEARCH EXPERIENCES

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**Summer Undergraduate Research Experience (SURE)**

*Emory University - Department of Computer Science*

Atlanta, GA

*June 2022 - August 2022*

- Proposed model to reduce pulmonary nodule false positive reduction through explanation-guided learning; surveyed related work and ran baseline experiments.
- Applied image-to-image translation to increase training samples, which further improved the explanation performance and mitigates the mode collapse problem.

**Undergraduate Research Assistant**

*Emory University - Department of Computer Science*

Atlanta, GA

*December 2021 - Present*

- Conduct research on optimizing the prediction loss and explanation loss of image classification with deep neural networks under the guidance of Dr. Liang Zhao.
- Surveyed papers in the area of explanation supervision, constructed benchmark datasets for the application of explanation supervision in computer vision; ran experiments on selected papers.

**Undergraduate Research Assistant**

*Emory University - Department of Computer Science*

Atlanta, GA

*August 2021 - December 2022*

- Conduct research on pressure ulcer prediction with sequential pattern mining under the supervision of Dr. Joyce Ho.
- Worked on data cleaning and preprocessing of clinical notes, extracted key patterns from the clinical notes through name entity extraction (NER) library; conducted sequential pattern mining on clinical notes to improve prediction accuracy; wrote a paper as the first author presenting current work.

**Summer Research Assistant**

*Emory University - Department of Computer Science*

Atlanta, GA

*May 2022 - August 2022*

- Conduct research on explaining BERT attention architecture; analyze BERT attention mechanism through POS tagging, dependency parsing, and subgraph analysis.

## WORK EXPERIENCES

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**Undergraduate Teaching Assistant (UTA)**

*Emory University - Department of Computer Science*

Atlanta, GA

*January 2022 - Dec 2022*

- Nominated to be a UTA for CS 253 - Data Structures and Algorithms in Spring and Fall 2022.
- Support the instructor by grading assignments, answering student questions, holding two office hours per week to assist students with course material, and giving lectures occasionally.

## PUBLICATIONS

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1. **Gu, S.** et al. (2023). ESSA: Explanation Iterative Supervision via Saliency-guided Data Augmentation. The 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining. (*Oral*)
2. **Gu, S.** et al. Saliency Guided Learning for Pulmonary Nodule False Positive Reduction. SURE Symposium. (*Oral*)
3. **Gu, S.**, et al. Evaluating Natural Language Processing Packages for Predicting Hospital-acquired Pressure Ulcer Injuries from Clinical Notes. (*Under Revision*)
4. Zhang, Y., **Gu, S.**, et al. MAGI: Multi-Annotated Explanation-Guided Learning. Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), 2023
5. Gao, Y., Sun, T., Bai, G., **Gu, S.**, et al. (2022). RES: A Robust Framework for Guiding Visual Explanation. The 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining. (*Oral*)
6. Gao, Y., **Gu, S.** et al. Going Beyond XAI: A Systematic Survey for Explanation-Guided Learning (*Under Revision at CSUR*)
7. Zhang, Y., **Gu, S.** et al. Visual Attention-Prompted Prediction and Learning. (*Under Review at ICLR*)
8. Zhang, Y., **Gu, S.** et al. XAI Benchmark for Visual Explanation. (*Arxiv*)

## HONORS AND AWARDS

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<b>Dean's List</b>	<i>2020, 2021, 2022, 2023</i>
<b>Summer Undergraduate Research Experience Fellowship</b>	<i>2022</i>
<b>Summa Cum Laude(Highest Honor)</b>	<i>2023</i>
<b>Academic Excellence Award (Department of Computer Science)</b>	<i>2023</i>

## EXTRACURRICULAR ACTIVITIES & SERVICES

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**ACM SIGKDD Workshop DeepSpatial 2022** Remote  
*Publicity Chair* *May 2022 - August 2022*

- Maintained the website and prepared advertisement for DeepSpatial 2022, the 3rd ACM SIGKDD Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems.

**Ascend Investment Group - Quant Team** Atlanta, GA  
*Analyst* *November 2021 - May 2022*

- Conducted quantitative analysis of the stock market and business; used machine learning and momentum indicators to predict market stock price.
- Participated in research projects that specifically applied HMM and LSTM neural networks to predict stock price and wrote project reports to present the findings.

## SKILLS

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**Programming languages:** Python, Java, MATLAB, RStudio, SQL, SAS

**Tools:** PyTorch, TensorFlow, Scikit-Learn, SciPy, Pandas, Seaborn

**Languages:** : Mandarin(Native), English(Proficient), Japanese(Intermediate), Spanish(Intermediate)