Siyi(Carrie) Gu

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EDUCATION

Emory University *August 2019 - May 2023*
Bachelor of Science - Applied Mathematics and Statistics, Computer Science(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, Mathematical Statistics

RESEARCH EXPERIENCES

Undergraduate Research Assistant Atlanta, GA
Emory University - Department of Computer Science *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 and a Ph.D. candidate.
· Evaluated the validity of the images, cleaned irrelevant information, and worked on model optimization.
· 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; wrote a survey paper as the second author and submitted to CSUR.

Summer Undergraduate Research Experience (SURE) Atlanta, GA
Emory University - Department of Computer Science *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; proposed a new model that deals with mode collapse by training the nodule and surrounding background with different losses.

Undergraduate Research Assistant Atlanta, GA
Emory University - Department of Computer Science *August 2021 - Present*

· Conduct research on the prediction of pressure ulcer with sequential pattern mining under the guidance of Dr. Joyce Ho and a Ph.D. candidate.
· Worked on data cleaning and preprocessing of clinical notes, extracted key elements 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 Atlanta, GA
Emory University - Department of Computer Science *May 2022 - Present*

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

Undergraduate Research Fellow Columbia University
Remote *May 2020 - August 2020*

· Led a team of five members under the supervision of Prof. Patrick Houlihan from the Data Science Department of Columbia University and conducted research on machine learning and natural language processing.
· Analyzed and constructed our own music recommendation algorithm which aimed to recommend music through users' prior listening history and wrote a paper showcasing our algorithm as the first author.

WORK EXPERIENCES

Undergraduate Teaching Assistant (UTA)
Atlanta, GA
Emory University - Department of Computer Science — *January 2022 - Dec 2022*

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

Essence Securities
Hangzhou, China
Summer Intern Wealth Management Center — *Jun 2021 - July 2021*

· Presented weekly pitches and wrote internally distributed reports for all public funds that were newly introduced as investment recommendations.
· Conducted quantitative analysis of public funds on details of their previous holdings, fund size, and yearly return, and then performed risk and profitability analysis accordingly.

Industrial and Commercial Bank of China – Jiaxing Branch
Jiaxing, China
Data Analyst Intern — *July 2020*

· Used SAS and SQL codes to generate reusable reports, resulting in improved accuracy and efficiency of data collection. Performed asset analysis of the clients and reported their asset changes daily, monthly, and yearly to promote specialized advertisement of bank products.
· Analyzed market potential of the nine core markets in Jiaxing. Processes included finding the distribution and type of transactions, their usage of bank products of different time periods, and the analysis of the trend of market size and product usage.

Mirage Studio
Shanghai, China
Co-founder/Designer — *Feb 2017 - Aug 2020*

· Made yearly marketing plan for the studio; analyzed the potential and trend for the market, contacted famous bloggers to promote our brand and made advertising posters.
· Cooperated with illustrators and factories for design and production; came up with ideas of inspiration for illustrators and designed my own series; sold more than four thousand tapes with an approximate revenue of 20,000 USD.

PUBLICATIONS

[1] **Gu, S.,** , Gao, Y., and Zhao, L. (2022). Saliency Guided Learning for Pulmonary Nodule False Positive Reduction. SURE Symposium. *(Oral Presentation)*

[2] Gao, Y., **Gu, S.**, Jiang, J., Hong, S., Yu, D., and Zhao, L. Going Beyond XAI: A Systematic Survey for Explanation-Guided Learning. *(Submit to CSUR)*

[3] Gao, Y., Sun, T., Bai, G., **Gu, S.,** Hong, S., and Zhao, L. (2022). RES: A Robust Framework for Guiding Visual Explanation. The 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining.

[4] **Gu, S.,** , Lee, E., Zhang, W., Simpson, L. R., Hertzberg, S. V., Ho C. J. Evaluating Natural Language Processing Packages for Predicting Hospital-acquired Pressure Ulcer Injuries from Clinical Notes. *(Under Review)*

[5] **Gu, S.**, Zhang, J., Qiu, X., Du, F., Yu, H. (2021). Music Recommendation Algorithm through Word2vec Embeddings. International Conference on Computing and Data Science (pp. 382-392). Springer, Singapore.

HONORS AND AWARDS

Dean's List	*2020, 2021, 2022*
Summer Undergraduate Research Experience Fellowship	*2022*
Member of Emory College Honors Program	*2022 - Present*

EXTRACURRICULAR ACTIVITIES & SERVICES

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

· Maintained the website for DeepSpatial 2022, the 3rd ACM SIGKDD Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems; designed a poster for advertisement.

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.

Sino-Emory Newsletter   Atlanta, GA
Design VP   *August 2020 - May 2022*

· Organized the monthly newsletter for Sino-Emory Newsletter Club; designed posters for club activities.

Emory Global Chinese Summit   Atlanta, GA
Marketing Team Member   *November 2021 - May 2022*

· Responsible for the marketing of public events such as debate and speeches and prepared for the upcoming summit event. Designed posters and pitch book for the Summit; made weekly-to-monthly news posts on WeChat discussing current issues between China and the US.

SKILLS

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)