

# YULU QIN

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## EDUCATION

### New York University

*M.S. in Computer Science at Courant Institute, GPA: 3.78/4*

Sept 2021 – May 2023

*New York, NY*

### The Ohio State University

*B.A. in Sociology and Computer Information Science, Magna Cum Laude*

Sept 2018 – May 2021

*Columbus, OH*

### Nankai University

*GPA (4.0 Scale): 3.7, GPA (100 Scale): 88.50 Rank: Top 18 in 102 in department*

Sep. 2016 – Jun. 2018

*Tianjin, China*

## RESEARCH EXPERIENCE

### New York University Human and Machine Learning Lab

June 2023 – present

*Assistant Research Scientist, Advisor: Prof. Brenden Lake*

- Learning syntax and semantics from a single-child's linguistic experience
- Examine model differences (LSTM vs. Transformer) on language learning from limited data

### The Ohio State University Computational Social Science

May 2020 – Dec 2020

*Undergrad Research Assistant, Dr. Eungang Choi, Erick Axte*

- Contributed results to presented talk in socPIE Workshop 2020
- Cooperated with team in Kaggle Twitter sentiment analysis extraction competition, preprocessed and cleansed the training data and performed the exploratory data analysis with Python, and applied TF-IDF and RoBERTa to perform sentiment analysis, obtaining an accuracy of 0.708
- Used dictionary-based analysis and topic modeling with R to analyze Airbnb reviews to examine racial disparity.

### The Ohio State University Natural Language Processing

May 2020 – Aug 2020

*Research Assistant of Word Alignment, Prof. Wei Xu*

- Employed the NLP word-aligner machine model to do word/phrase alignments, detected and analyzed complex ontology alignments, and identified discrepancies and increased the validity of alignments through adjustments

## TEACHING ASSISTANTSHIP

### NYU CSCI-GA.2565 Machine Learning

Sept 2022 – Dec 2022

- Assisted Prof. Rajesh Ranganath in creating rubrics and grading the grad-level Machine Learning (ML) course
- Explained solutions related to PyTorch simulations, statistical distributions, bayesian inferences, latent variables and generative models

## RELEVANT PROJECT

### Interpret BERT's Syntactic and Semantic representation | *Interpretability of LLMs*

Jan 2023 – May 2023

- Investigated BERT's understanding of phrasal, syntactic, and semantic representations, employing neural network probing and visualization techniques for interpretability. [\[Report\]](#)[\[Github\]](#)

### 10KInsight | *HackGPT@Cornell 2023 Finalists*

[DevPost](#) | [GitHub](#)

- Built a cloud-based application with Python Flask and JavaScript, utilizing LLM APIs to extract risk factors from 10K annual reports, reducing data processing time by 20% using Cohere API for content searching.
- Developed understanding of prompt engineering techniques, compared performances of GPT4All, GPT3.5 and Anthropic's Claude for optimal model performance and response generation.

### Grokking with transformers | *Python, Machine Learning*

Jan 2022 – May 2022

- Trained a transformer model with 400K parameters to 1M epochs and 2M optimization steps on algorithmic datasets for classification and utilized High Performance Computing Machine for training on the cloud [\[Report\]](#)
- Experimented and presented how changes in operators and cardinality of a dataset affect the occurrence of Grokking

### Text To Image Generation | *Python, Hugging Face, PyTorch*

Sept 2022 – Dec 2022

- Fine-tuned Stable Diffusion model for text-to-image generation with Oxford-102 and CIFAR-10 datasets achieving 28.34 FiD and 99% GAN Test score along with manual qualitative performance analysis under the guidance of **Prof. Rob Fergus** [\[Link\]](#)

## MISC

**Languages:** Python, Java, C++, HTML/CSS, JavaScript, SQL

**Technologies/Frameworks:** Apache Spark, Python Flask, Ruby on Rails, Pytorch, Hugging Face, Git, Linux, ZenHub, Swagger, Ansible, PostgreSQL, Shell Script

**Relevant Courses:** Machine Learning, Computational Cognitive Modeling, Natural Language Processing, Computational Linguistics, Fundamental Algorithms, Artificial Intelligence, Linear Algebra, Mathematical tools in Computer Science