# Kaiyu He

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## Education

**University of Texas at Dallas, TX, US** Aug 2023– Jun 2028(expected)
*Ph.D. in Computer Science, GPA:4.0/4.0*

**Columbia University in the City of New York, New York, US** Sep 2021– Jun 2023
*M.S in Biostatistics, GPA:4.0/4.4*

**Renmin University of China, Beijing, China** Sep 2016 – Jun 2020
*B.S in Applied Statistics, GPA:3.2/4.0*

## Research

**Enhancing the Rule Learning Ability of Large Language Model Agent, Prof. Zhiyu Chen** Dec 2023 – Present
*Research Assistant, University of Texas at Dallas (First author)* *NLP, LLM agent*

- Design a novel benchmark environment for evaluation of reasoning power of large language models.
- Designed the experiment, developed the benchmark, wrote all code.
- Writing and preparing the research paper for submission to top-tier conferences.
- Paper currently under review of ICLR 2025.*Paper link*

**IAPRA Trajectory Anomaly Characterization Project, Prof. Feng chen** Sep 2023 – May 2024
*Research Assistant, AI Safety Laboratory, University of Texas at Dallas (First author)* *Algorithm, Optimization*

- Design Anomaly trajectories insertion algorithm with mixed integer linear optimization.

**Cross-Cultural Harmony through Response Mediation, Prof. Kathleen McKeown** Jan 2023 – May 2024
*Research Assistant, Columbia NLP group, Columbia University* *Multi-modal, NLP*

- Construct aligning models for multi-modal and multi-lingual features.
- Design Automatic Annotate system for predicting communication change in video.

**A Decoded EEG Neurofeedback Platform Using Muse2, Prof. XiaoFu He** Apr 2022 – Dec 2022
*Research Assistant, Data Science Institute, Columbia University* *Bio-informatics*

- Design, train, and tune Deep Neural based Classifier for EEG data; Collect EEG data using Muse2.
- Successfully increased the accuracy of the classifier by 30% on the test set.
- Poster section on rtFIN conference. *Poster link*

**New York Covid Case Investigation Analysis, Prof. Sen Pei** Mar 2022 - Feb 2023
*Research Assistant, Mailman School of Public Health, Columbia University (First author)* *Public health, Epidemiology*

- Analyze key features affecting the complete rate of case investigation and contact intake.
- Using GLM, random forest, and Linear Mixed effect model to evaluate the significance of features.
- Train NLP models using messages in voice mails to predict completeness for each phone interview.
- Paper accepted by BMC Public Health. *Paper link*

## Other Projects

**Latent Space Discovery of DCGAN Model** May 2022 - June 2022
*Personal Project* *GAN, Knowledge representation*

- Train DCGAN models using TensorFlow to generate images.
- 3-D Visualization of latent representations of images to show the latent representation from GAN.
- *Source code*

**Abstract text summarization using Sim-CLS** Oct 2022 - Dec 2022
*Personal Project* *NLP summarization*

- SimCLS tuning in more recent models and see how SimCLS boost different types of models.
- Using medical datasets to train a SimCLS model to auto titling medical papers.

- *Blog link*
- *Source code*

**2022 Columbia University Innovation Award (VR)** Mar 2022 - May 2022
*Teachers College, Columbia University* *VR video game*
- Built an VR educational game for teaching physics using Unity Engine.
- *Demo video*
- *Source code*

## Working Experience

**89 Trillion, Art of War: Legions** Aug 2020 – Apr 2021
*Game Numeric Designer* *Beijing, China*
- Worked with the AI team to select the in-game numeric features used for Recommend System.
- Conducted A-B tests to determine the performance of new systems in the game.
- Set numeric values for game content according to the statistic model.
- Design game content. *BOSS I designed*

## Technical Skills

**Programming Languages**: Python, C#, R, C, SQL

**Deep Learning Frameworks**: Tensorflow, PyTorch, Numpy, Pandas, Caret(R), SciKit-Learn, Transformers

**Others**: Unity

## Certifications

- TensorFlow Developer Certificate