

# YINHONG LIU

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Homepage: <http://www.yinhongliu.com>

## EDUCATION EXPERIENCE

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**University of Cambridge, Language Technology Lab; PhD** 2021.10 - present

- Supervisor: Prof. Nigel Collier
- Research area: Large Language Model Evaluator; Controllable Text Generation with underlying structure in various domains; Data Synthesis for Task-Oriented Dialog systems; Multi-modal Functional Discourse Structure.
- Scholarship: Cambridge Trust

**University of Cambridge, Computer Lab; Mphil** 2020 - 2021

- Subject: **Advanced Computer Science, in Natural Language Processing.**
- Grade: **Distinction.**
- Master project: **Learning Functional Distributional Semantics with Visual Data:** Use Visual Genome data to train a novel probabilistic distributional semantic model which represents words as function rather than vector. The framework provides linguistic interpretability.

**University of Cambridge, Engineering Department; BA, MEng** 2014 - 2018

- Subject: **Information Engineering and Computer Science.**
- Grade in Master of Engineering: **Merit degree** with honours.
- Grade in Bachelor of Arts: **1st Class.**
- Final year project: **Statistical enhancement of multi-channel audio data:** Model multi-channel noisy soundtrack as an additive model with multi-variant Gaussian noises and sound signals. Derive a Maximum Likelihood estimator of the underlying signal and a Bayesian approach to estimate the noise parameters with a Wishart distributed prior.

## WORK, RESEARCH EXPERIENCE

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**AI/ML, Apple; Cambridge.** *Research Intern* Jun. 2023 - Oct. 2023

- Developed an automatic Task-Oriented-Dialog dataset generation pipeline with in-depth analysis in optimal virtual system response styles. This work benefits both internal Siri model development and external NLP community.
- Worked on industrial-level projects involving Large Language Models (LLMs).

**Gambit Research; London.** *Full-time Quant-analyst* Oct. 2018 - Jul. 2020

- Working on various statistical football teams & games modelings, market price & volume predictions, strategies developing and back-testing.
- Extensive experience in various programming environments, including Python, SQL and BASH.

**Jigsaw Unintended Bias in Toxicity Classification, Kaggle competition** Jun. 2019

- Got a 225th place out of 3165 teams (top 8%), a bronze medal, as a solo participator.

- Comments that mention certain minority groups, like black people, women and Asians, have higher chance to be toxic. Therefore, challenge exists in classify those comments' toxicity correctly regardless of their bias in the minority groups.
- Applied the latest language models, including LSTM, BERT and GPT-2. Designed a custom loss function based on the evaluation metrics. Model implemented in PyTorch and trained across multiple cloud GPUs.

## PUBLICATIONS

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- **Aligning with Human Judgement: The Role of Pairwise Preference in Large Language Model Evaluators** submitted for review.
- **TOAD: Task-Oriented Automatic Dialog generation pipeline with diverse system response style.** ACL 2024. Yinhong Liu, Yimai Fang, David Vandyke and Nigel Collier.
- **Unlocking Structure Measuring: Introducing PDD, an Automatic Metric for Positional Discourse Coherence** NAACL 2024, main conference. Yinhong Liu, Yixuan Su, Ehsan Shareghi and Nigel Collier.
- **Instruct-SCTG: Guiding Sequential Controlled Text Generation through Instructions.** Yinhong Liu, Yixuan Su, Ehsan Shareghi and Nigel Collier.
- **Plug-and-play Recipe Generation with Content Planning.** EMNLP 2022, Generation, Evaluation & Metrics Workshop. Yinhong Liu, Yixuan Su, Ehsan Shareghi and Nigel Collier.
- **Learning Functional Distributional Semantics with Visual Data.** ACL 2022, main conference. Yinhong Liu and Guy Emerson.
- **Multi-channel audio statistical restoration.** IEEE-ICSPCC, 2020. Yinhong Liu and Simon Godsill.

## PRIZE & EXTRA-CURRICULUM ACTIVITIES

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Best Reviewer Award, EMNLP 2023, Natural Language Generation track.

PhD scholarship: Cambridge International Scholarship by Cambridge Trust.

Academic scholarship: Caldwell Scholarship by Corpus Christi College, University of Cambridge

Cambridge Chinese Drama Society: Protagonist in a university play, *Our Assassin*; Producer of two university plays *The Robin Murders* and *The Village*.

## LANGUAGE & SKILLS

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Languages: Chinese Mandarin (native), English (fluent), Chinese Cantonese (fluent).

Programming Languages:

- Inter-mediate Level: Python, C++, SQL, Matlab, Latex.
- Beginner Level: Javascripts, HTML, Objective-C.