

YIFU QIU

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RESEARCH SUMMARY

Final-year PhD researcher at the University of Edinburgh/Cambridge (via the European Lab for Learning and Intelligent Systems (ELLIS) Network), **Apple AIML PhD Scholars** in 2023. My work focuses on the **latent world model** in large foundation models (e.g., LLMs and VLMs), investigating their emergent ability in world modelling with the minimum supervision, multimodal grounding to the physical reality, and next-generation omnimodal architectures. I have also developed the algorithms and evaluation frameworks to detect and mitigate hallucinations for these models. I have multiple first-author publications at **ICLR**, **NeurIPS**, **ACL**, **EMNLP**, and **NAACL**, with industrial experiences and collaborations spanning **Meta FAIR**, **Apple AIML**, **NVIDIA Research**, and **Baidu NLP**.

EDUCATION

University of Edinburgh & University of Cambridge <i>PhD in Natural Language Processing (ELLIS Program)</i>	Oct 2022 – Jun 2026 (Expected)
	<i>United Kingdom</i>
– Topic: Latent World Modelling in Foundation Models (Advisors: Shay Cohen, Anna Korhonen, Edoardo Ponti).	
– Fully funded by Apple AIML Fellowship and Informatics Global PhD Scholarship.	
– Selected for the ELLIS PhD program (< 5% acceptance rate).	
University of Edinburgh <i>MSc in Cognitive Science (NLP Specialism) – Distinction</i>	Sep 2020 – Aug 2021
	<i>United Kingdom</i>
BNU-HKBU United International College <i>BSc in Computer Science – 1st Class Honours</i>	Sep 2016 – Aug 2020
	<i>China</i>

RESEARCH EXPERIENCE

Research Scientist Intern <i>Meta FAIR (Fundamental AI Research)</i>	June 2025 – Sep 2025
Project: Omnimodal Foundation Models (Large Concept Model) Host: <i>Dr. Holger Schwenk</i>	<i>Paris, France</i>
– Developed vSONAR , a vision-language embedding space supporting 200+ text and 37 speech languages.	
– Introduced vLCM , a scalable post-training pipeline for the 7B Large Concept Model (LCM), utilizing 1M instruction tuning samples and 200K interleaved multimodal Chain-of-Thought data.	
– Achieved SOTA performance on multilingual captioning and QA, outperforming existing baselines in 61 out of 62 languages .	
– Paper: <i>Unified Vision-Language Modeling via Concept Space Alignment</i> (ICLR 2026).	
Research Scientist Intern <i>Apple AIML</i>	June 2024 – Sep 2024
Project: Long-Context Reasoning & Inference Optimization Hosts: <i>Dr. Benjamin Han, Dr. Yizhe Zhang</i>	<i>Seattle, WA</i>
– Proposed ICR² , a benchmark for evaluating In-Context Retrieval and Reasoning in realistic scenarios.	
– Engineered Retrieval-Attention-Probing , an inference-time alignment technique using attention heads to de-noise long contexts during decoding.	
– Demonstrated +17% Exact Match gain on LOFT and +13% on ICR ² using Mistral-7B, outperforming GPT-4-Turbo on specific tasks.	
– Paper: <i>Eliciting In-context Retrieval and Reasoning for Long-Context Language Models</i> (ACL 2025).	
Research Scientist Intern <i>Apple AIML</i>	June 2023 – Sep 2023
Project: Trustworthy Generation & Hallucination Mitigation Host: <i>Dr. Benjamin Han</i>	<i>Seattle, WA</i>
– Developed TWEAK , a decoding-only hypothesis verification method to reduce hallucinations in knowledge-to-text generation without model retraining.	
– Created FATE (Fact-Aligned Textual Entailment), a dataset for training task-specific verifiers.	
– Improved faithfulness metrics (FactKB) by 7.17 points in out-of-distribution settings with negligible latency cost.	
– Paper: <i>Think While You Write: Hypothesis Verification Promotes Faithful Knowledge-to-text Generation</i> (NAACL 2024).	

Research Scientist Intern

Baidu, Inc. (NLP Department)

Nov 2021 – Aug 2022

Beijing, China

Project: Dense Retrieval at Scale | Hosts: Dr. Hongyu Li, Dr. Jing Liu

- Constructed **DuReader-Retrieval**, the largest Chinese passage retrieval benchmark derived from real-world search engine logs.
- Implemented diversity-enhanced dense retrieval training strategies using Natural Language Inference supervision.
- Paper: *DuReader-Retrieval: A Large-scale Chinese Benchmark...* (EMNLP 2022).

PUBLICATION LIST

Self-Improving World Modelling with Latent Actions (Collaboration with Nvidia Research)

Yifu Qiu, Zheng Zhao, Waylon Li, Yftah Ziser, Anna Korhonen, Shay Cohen, Edoardo Ponti

Under Review, ICML 2026

Unified Vision–Language Modeling via Concept Space Alignment

Yifu Qiu, Paul-Ambroise Duquenne, Holger Schwenk

ICLR 2026

Bootstrapping Action-Grounded Visual Dynamics in Unified Vision–Language Models (Collaboration with Nvidia Research)

Yifu Qiu, Yftah Ziser, Anna Korhonen, Shay Cohen, Edoardo Ponti

Under Review, ACL 2026

Eliciting In-context Retrieval and Reasoning for Long-Context Language Models

Yifu Qiu, Varun Embar, Shay Cohen, Yizhe Zhang, Navdeep Jaitly, Benjamin Han

ACL 2025

Spectral Editing of Activations for Large Language Model Alignment

Yifu Qiu, Zheng Zhao, Anna Korhonen, Edoardo Ponti, Shay Cohen

NeurIPS 2024

Are Large Language Models Temporally Grounded?

Yifu Qiu, Zheng Zhao, Anna Korhonen, Edoardo Ponti, Shay Cohen

NAACL 2024

Think While You Write: Hypothesis Verification Promotes Faithful Knowledge-to-text Generation

Yifu Qiu, Varun Embar, Shay Cohen, Benjamin Han

NAACL 2024

Detecting and Mitigating Hallucinations in Multilingual Summarisation

Yifu Qiu, Anna Korhonen, Edoardo Ponti, Shay Cohen

EMNLP 2023

Abstractive Summarization Guided by Latent Hierarchical Document Structure

Yifu Qiu, Shay Cohen

EMNLP 2022

DuReader-Retrieval: A Large-scale Chinese Benchmark for Dense Information Retrieval from Real-World Applications

Yifu Qiu, Hongyu Li, Yingqi Qu, Ying Chen, Qiaoqiao She, Jing Liu, Hua Wu, Haifeng Wang

EMNLP 2022

COLLABORATION PUBLICATION LIST

Lost in Space? Vision-Language Models Struggle with Relative Camera Pose Estimation (Collaboration with Nvidia Research)

Ken Deng, Yifu Qiu, Yoni Kasten, Shay Cohen, Yftah Ziser

Under Review, ACL 2026

Iterative Multilingual Spectral Attribute Erasure

Shun Shao, Zheng Zhao, Yifu Qiu, Yftah Ziser, Shay Cohen
EMNLP 2025

What Is That Talk About? A Video-to-Text Summarization Dataset for Scientific Presentations

Dongqi Liu, Chenxi Whitehouse, Xi Yu, Louis Mahon, Rohit Saxena, Zheng Zhao, Yifu Qiu, Mirella Lapata, Vera Demberg
ACL 2025

Multiple Instance Learning with Coarse-to-Fine Self-Distillation

Shuyang Wu, Yifu Qiu, Ines Nearchou, Sandrine Prost, Jonathan Fallowfield, Hakan Bilen, Timothy Kendall
Under Review by TMI

EEE-QA: Exploring Effective and Efficient Question-Answer Representations

Zhanghao Hu, Yijun Yang, Junjie Xu, Yifu Qiu, Pinzhen Chen
LREC-COLING 2024

TECHNICAL SKILLS

Core Research Area: LLM/VLM Post-Training (SFT, RLHF), Multimodality, Reasoning, AI Safety (truthfulness and fairness)

Deep Learning: PyTorch, HuggingFace Transformers, Diffusers

Scaling and Infrastructure: DeepSpeed, FSDP, Slurm, Distributed Data Parallel (DDP)

Languages: Python, C++, SQL, Bash

SELECTED AWARDS & HONORS

Apple AIML PhD Fellowship (2023) – Awarded to top PhD students in AI worldwide.

ELLIS PhD Program Member (2022) – Selected for excellence in European AI research.

Informatics Global PhD Scholarship, University of Edinburgh (2022).

Lord Frederick Cavendish Award, University of Cambridge (2022).

Top 1% Scholarship, BNU-HKBU UIC (2019, 2020).

TEACHING

Advanced Topics in Natural Language Processing, University of Edinburgh, Teaching Assistant, 2025

Accelerated Natural Language Processing, University of Edinburgh, Teaching Assistant, 2023

Natural Language Understanding, Generation and Machine Translation, University of Edinburgh, Teaching Assistant, 2024

Machine Learning Practical (Deep Learning), University of Edinburgh, Tutor, 2023,2024

ACTIVITIES

Invited Speaker, **Citadel PhD Summit**, United Kingdom, 2025.

Invited Speaker, **Apple AIML**, United States, 2024.

Invited Speaker, **Shanghai AI Lab**, China, 2023.

Member, **Oxford Machine Learning Summer School**, 2022.

Member, **Cornell, Maryland, and Max Planck Pre-Doctoral Research School (CMMRS)**, 2021.

ACADEMIC SERVICE

ICML 2026, Reviewer

NeurIPS 2024, 2025, Reviewer

AISTATS 2025, 2026, Reviewer

ACL 2025, 2026, Reviewer

EMNLP 2025, 2025, Reviewer

NAACL 2024, Reviewer

Workshop on the Scaling Behavior of Large Language Models@EACL 2024, Committee Member

Language Resources and Evaluation, Reviewer