

YIMENG GU

guyimeng3@gmail.com ♦ <https://gymbeijing.github.io>

EDUCATION

Queen Mary University of London

Ph.D. in Computer Science

Advisor: Prof. Gareth Tyson

Research Interests: Multimodal Learning, MLLM/LLM Applications, Fake News Detection

London, UK

Sept 2021 - Sept 2025 *expected*

Carnegie Mellon University

M.S. in Electrical and Computer Engineering

Pittsburgh, PA, USA

Aug 2020 - Aug 2021

The Hong Kong University of Science and Technology

MSc. in Big Data Technology

Hong Kong, China

Sept 2019 - June 2020

Beihang University

B.E. in Electronics Information Engineering

Shenyuan Honors College (top 50/3000+)

Beijing, China

Sept 2014 - June 2018

RESEARCH EXPERIENCE

Queen Mary University of London | PhD Student

Advisor: Prof. Gareth Tyson

Project: Multi-MLLM Knowledge Distillation for Out-of-Context News Detection

London, UK

Sept 2021 - *present*

- Designed an evidence-based chain-of-thought (CoT) prompt to obtain label predictions and rationales from multiple 70B teacher MLLMs for out-of-context news detection
- Distilled reasoning capabilities from multiple teacher MLLMs to a 7B student MLLM via two stages: LoRA fine-tuning for rapid knowledge absorption, then DPO to improve reasoning discernment
- Improved detection performance by 13.5% with 10x fewer parameters and only 10% labeled data

Project: Contrastive Domain Adaptation with Test-Time Training for Out-of-Context News Detection

- First to explore domain adaptation in out-of-context news detection
- Proposed a novel approach combining contrastive learning and maximum mean discrepancy (MMD) to learn domain-invariant features from an insufficient number of domains
- Integrated test-time training for the target domain adaptation, resulting in a 2.6% performance improvement on benchmark datasets

Project: Detecting Multimodal Fake News with Gated Variational AutoEncoder

- Designed perturbation experiments and demonstrated that multimodal news on social media contains substantial noise which undermines previous approaches' robustness
- Designed soft gates and reinforcement learning-based gate to dynamically filter out the noise
- Proposed a gated multimodal VAE framework for learning a robust news representation, achieving 3.7% performance improvement on benchmark datasets

WORK EXPERIENCE

Autodesk Research | Research Intern in AI Lab

Topic: Identifying Mechanisms in Fusion360 Assemblies

London, UK

Jun 2023 - Sept 2023

- Introduced a part-graph representation technique leveraging CLIP-based multi-view image encoding and TSP-guided embedding ordering
- Proposed an AutoEncoder-Latent GAN framework to learn the probabilistic distribution of surrounding parts of a central part from an assembly

- Designed both quantitative (IoU) and qualitative evaluation metrics; model outperformed baseline by 3% in IoU while predicting neighbors for an unseen central part

IFLYTEK Group | AI Research Intern

Beijing, China

Topic: Natural Language Processing with Legal Texts

Oct 2018 - Apr 2019

- Annotated 360+ Chinese labor contracts to locate and extract key fields: *job position*, *job location*, *job description* and *part-time/full-time*
- Applied R-Net (reading comprehension) and BiLSTM-CRF (named entity recognition) to the task and achieved over 50% improvement in exact match (EM) and accuracy
- Performed an in-depth error analysis on the trade-offs between applying span extraction and sequence labeling in contract key fields extraction

SELECTED PUBLICATIONS

1. Multi-MLLM Knowledge Distillation for Out-of-Context News Detection
Yimeng Gu, Zhao Tong, Ignacio Castro, Shu Wu, Gareth Tyson
Under Submission, 2025
2. Generate First, Then Sample: Enhancing Fake News Detection with LLM-Augmented Reinforced Sampling
Zhao Tong, **Yimeng Gu**, Huidong Liu, Qiang Liu, Shu Wu, Haichao Shi, Xiao-Yu Zhang
In *ACL*, 2025 (Oral Presentation)
3. R²FND: Reinforced Rationale Learning for Fake News Detection with LLMs
Zhao Tong, **Yimeng Gu**, Qiang Liu, Haichao Shi, Shu Wu, Xiao-Yu Zhang
In *IJCNN*, 2025
4. Contrastive Domain Adaptation with Test-Time Training for Out-of-Context News Detection
Yimeng Gu, Mengqi Zhang, Ignacio Castro, Shu Wu, Gareth Tyson
In *Pattern Recognition*, 2025
5. GatedVAE: Detecting Multimodal Fake News with Gated Variational AutoEncoder
Yimeng Gu, Ignacio Castro, Gareth Tyson
In *ACM Web Science*, 2024
6. MMVAE at SemEval-2022 Task 5: A Multi-modal Multi-task VAE on Misogynous Meme Detection
Yimeng Gu, Ignacio Castro, Gareth Tyson
In *NAACL SemEval Workshop*, 2022

HONORS AND AWARDS

- ACM WebSci'24 Travel Grant Apr 2024
- HKUST MSc (BDT) Excellent Student Scholarship 2019 (Top 7%) Apr 2020
- Excellent Undergraduate in Beihang University June 2018
- Second Prize in Science and Technology Competition in Beihang University (Top 15%) May 2017
- Honorable Mention in COMAP's Mathematical Contest in Modeling Apr 2016

LANGUAGE AND SKILLS

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|---------------------------|---|
| Computer/Technical | Python, Java, C/C++, Spark, SQL, git, gradle, IntelliJ IDEA, PyCharm, AWS, Azure, VS Code, Hadoop, Spark, AutoCAD, JUnit, Travis CI |
| Deep Learning | Pytorch, Tensorflow, HuggingFace, (M)LLMs, vLLM, LoRA FT, SFT, LMDeploy, Prompt Engineering |
| Language | English (fluent), Mandarin (native) |