

# Yiming Cheng

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## EDUCATION

<b>Tsinghua University</b>	Department of Electronic Engineering	<i>Sep.2019-Jul.2024</i>
Bachelor of Engineering in <b>Electronic Engineering(Major)</b>		
Minor in <b>Statistics</b> , Minor in <b>Laws(Enrolled in School of Law; Transferred major to EE.)</b>		
<b>University of Chicago</b>	Department of Computer Science	<i>Expected:Jan.2026</i>
Master (Pre-doc) in <b>Computer Science, Mlsys track</b>		
• <b>GPA: 3.95/4.0</b>		

## PUBLICATIONS

- Yi Yang, Hao Feng, **Yiming Cheng**, Zhu Han “**Emotion-Aware Scene Adaptation: A Bandwidth-Efficient Approach for Generating Animated Short**”, MDPI-sensors 2024
- X Lan, **Y Cheng**, L Sheng, C Gao, Y Li “**Depression detection on social media with large language models**”, arXiv preprint arXiv:2403.10750
- X Lan, J Piao, **Y Cheng**, C Gao, Y Li et al. Recommendation for Inclusivity of Underrepresented Producers in Usergenerated Content Platforms. In recycle
- Yi Yang, Hao Feng, **Yiming Cheng**, Yitong Ma, Zhu Han, “Minimizing Hallucinations and Communication Cost: Adversarial Debate and Voting Mechanisms in LLM-Based Multi-Agents,” MDPI Applied Science 2025
- **Yiming Cheng**, “Research on Recommendation System Technology Based on Large Language Models,” Graduation Design, Tsinghua University, 2024.
- Kuntai Du, **Yiming Cheng**, et al, “LMPrefill: An Inference Engine for Prefill-only Workloads in Large Language Model Applications”, in submission to SOSP 2025
- **Patent**: Yi Yang, **Yiming Cheng**, Hao Feng, et al. “A Semantic Encoding and Decoding Framework for Converting Visual Content into Virtual Animated Visual Representations.

## RESEARCH EXPERIENCES

### Graduate Research

#### Lmcache Team

*Sep.2024-present*

#### Open Source Contributor and Research Assistant

*Advisor: Prof. Junchen Jiang*

#### Working on open-source project:

- **LMCache**: The first open-source Knowledge Delivery Network (KDN) that accelerates LLM applications up to 8x faster, at 8x lower cost.
- **VLLM/production stack**: Scale from single vLLM instance to distributed vLLM deployment without changing any application code. Now an official project under vLLM.
- Maintain and contribute to Open-Source repo. Working on Router Scheduling and cloud deployment . Contributed 1262 lines of code.

#### Argonne National Laboratory

*May.2025-Oct.2025*

#### Research Assistant, Fellowship

*Advisor: Prof. Kexin Pei*

- 2025 Summer of Reproducibility (SoR) Fellowship under the Open Source Research Experience (OSRE) and REPETO programs, with United States National Science Foundation
- **EnvGym**: Project Leader, build and design a system-optimized agent system for environment setup
- to be update, poster is coming out soon

### Undergraduate Research

#### Future Intelligent Lab(FIBLAB), Tsinghua University

*Jul.2022—Jun.2024*

#### Research Assistant

*Advisor: Prof. Yong Li*

#### Recommendation for Inclusivity of Underrepresented Producers in User-generated Content Platform

- Take the pioneering step to thinking of the inclusivity issue of underrepresented producers in UGC (user-generated content) platform.

- Propose to construct a heterogeneous graph that can enrich the relations of vulnerable populations, and further propose **graph neural networks(GNN)** to learn representations based on enriching features from multi-hop neighbors.

#### **City Socioeconomic Simulator based on Large Language Models**

- Use UE to Build a visual model scene of Beijing (CBD district)
- Use python to write scripts for agents to interface with LLM and design the agents' memory mechanism to do POI recommendation.(POI means point of interest in the city)
- Design and plug in agent-based recommendation systems

#### **Signal Processing Lab,Tsinghua University**

*Mar.2022—Jun.2024*

##### **Research Assistant**

*Advisor: Prof. Yi Yang*

#### **Emotion-Aware Scene Adaptation: A Bandwidth-Efficient Approach for Generating Animated Shorts**

- Use the PyTorch framework, build an image element and emotion recognition model based on the CLIP model and InceptionV3,and use PAD (Pleasure-Arousal-Dominance) for emotion scoring.
- Enhance the generated semantics using the EmoCap model trained based on PAD scores for emotion style, ultimately achieving higher emotional coherence than the baseline on the received new video frames.

#### **Wireless Networking, Signal Processing and Security Lab,University of Houston**

*April.2022—Jun.2024*

##### **Research Assistant**

*Advisor: Prof. ZhuHan, NAS Fellow*

#### **Scalable AI Generative Content for Vehicular Network Semantic Communication**

- This project aims to establish a large-model-based semantic communication channel and test its accuracy on a vehicular dataset
- Build and test a channel in PyTorch that uses CLIP to convert original images into semantics and then uses Stable Diffusion to restore semantics back into images.

## **INTERNSHIP**

#### **Beijing Thunisoft Information Technology Co., Ltd.**

##### **Software Engineer**

*July.2022—Sep.2022*

- Use Spring Batch to develop a batch job scheduling system supporting complex workflows and dependency management. Scheduled tasks are executed as planned using Cron expression triggers.
- Integrate Quartz scheduler for enhanced flexibility.
- Data integrity and stability are assured with Spring transaction management and JDBC operations.

#### **Beijing SmartBow Information Technology Co., Ltd.**

##### **Software Engineer**

*June.2023—Sep.2023*

- Refactor the Sunflower library(the main functions include JSON parsing, MQTT, B-Stack device information parsing, and data transmission encryption) for the company's Internet of Things (IoT) data platform using Go-lang
- Perform functional and performance testing on the refactored Sunflower library.
- Collaborate with hardware interns to debug and ensure successful MQTT-based data transfer of bridge deflection, vibration frequency, and temperature data from LuZhou Bridge to the company's database.

## **OTHERS**

#### **Scholarship:**

Merit-based Predoc Scholarship of \$40,000 ,University of Chicago (2024)

United States National Science Foundation for SoR project (2025)

#### **Academic Interest:**

**Previously as undergraduate:**Data mining(Recommendation System,Emotion Awareness,EmbodiedCity)

**Current and future:**System for machine learning(distributed LLM deployment,distributed KV cache,efficient ML)

Machine learning for systems(machine learning for code generation and Operating System)

**Programming Skills:** Python(Pytorch,CuPy), Go(Docker,K8s),Git(Github action),Linux,C,C++,Matlab,Verilog etc.

**Personal Website:** <https://eaminc.github.io/> includes github,google scholar and other detailed infomation