Shiqi Dai

Website	shiqi-dai.github.io	**Mobile Phone**	+86-153-2960-0940
Address	Beijing, China	**Email**	daisq99@gmail.com

Personal Profile

A self-motivated and passionate research assistant, eager to pursue a Ph.D. in Computer Science or Electrical and Computer Engineering. My past research experience has involved downstream works with GANs and Diffusion Models, including applying Deepfake in live streaming and procedural content generation in games. I am currently interested in **Embodied AI**, with a special focus on interactive scene generation.

Education

Sep 2021 - Jun 2024 **Tsinghua University**, Beijing, China
Master of Computer Technology *Advisor: Prof.Zhi Wang*
Thesis: Procedural Content Generation with Diffusion Models and Neural Rendering

Sep 2017 - Jun 2021 **Renmin University of China**, Beijing, China
Bachelor of Computer Science and Technology
Thesis: Fake Video Generation Using GANs

Publications/Preprints/Patents

EmbodiedEval: Evaluating Multimodal LLMs as Embodied Agents
Zhili Cheng*, Yuge Tu*, Ran Li*, **Shiqi Dai***, Jinyi Hu, Shengding Hu, Jiahao Li, Yang Shi, Tianyu Yu, Weize Chen, Lei Shi, Zhiyuan Liu, Maosong Sun *(* equal contribution)*
In Submission to CVPR 2025

Procedural Level Generation with Diffusion Models from a Single Example
Shiqi Dai, Xuanyu Zhu, Naiqi Li, Tao Dai, Zhi Wang
Proceedings of the AAAI conference on Artificial Intelligence (AAAI), 2024

Collaborative Edge Caching in LEO Satellites Networks: A MAPPO Based Approach
Mingzhou Wu, **Shiqi Dai**, Han Hu, Zhi Wang
IEEE Conference on Multimedia Expo(ICME), 2024

A Method for Generating Game Level Content Based on Diffusion Models.
Shiqi Dai, Zhi Wang
CN117982898A, *Chinese Patent*, 2024

Research Experience

July 2024 - Present **Benchmark on Multimodal LLMs' Performance as Embodied Agents**
Research Assistant, Advisor: Prof. Zhiyuan Liu, Prof.Maosong Sun, Tsinghua University

- Proposed a comprehensive and interactive evaluation benchmark for MLLMs with embodied tasks which includes 328 distinct tasks within 125 varied 3D scenes.
- Worked on the construction of embodied tasks, especially in the collection of test scenes and seed tasks, and the annotation of the dataset.

Sep 2023 - Feb 2024 **Efficient Region-aware Scene Neural View Synthesis**
Lead Researcher, Advisor: Prof. Tao Dai, Prof. Zhi Wang, Tsinghua University

- Researched on semantic-guided world-to-world translation, especially combining NeRF and adversarial training to advance novel scene representation and real-time differentiable rendering.
- Worked on a neural field rendering pipeline for unbounded 3D scenes on mobile architectures.

Sep 2022 - Aug 2023 **Patch-based Game Level Generation Using Diffusion Models**
Lead Researcher and First Author, Advisor: Prof. Tao Dai, Prof. Zhi Wang, Tsinghua University

- Worked on computer graphics and game design, specifically researched algorithms for procedural content generation and applications of different variants of diffusion models.
- Developed a single-scale diffusion-based method that effectively captures the internal distribution of a *Minecraft* level, enhancing visual quality and playability, with a similar diversity as GAN-based models.

Oct 2020 - May 2021 **Live Streaming Applications with Deepfake**
Undergraduate Research Assistant, Advisor: Prof. Gang Yang, Renmin University of China

- Researched GAN-based deepfake models and algorithms, with a focus on generating fake videos through techniques like face swapping and lip syncing.
- Developed a live streaming application with the capability to replace a character's face and voice using a combination of pre-trained FSGAN and Wav2Lip models.

Internships

- **Research Assistant in THUNLP Lab,** Beijing, China 2024.7 - now
- **AIGC Intern (remote) in Tencent,**Shenzhen, China 2023.12 - 2024.3

Teaching Assistant

- **Distributed Machine Learning,** 2024 Spring
- **Literature Searching and Paper Writing,** 2023 Spring
- **Big Data System (B),** 2022 Fall

Honors and Awards

- **Outstanding Graduate of School of Information (top 5%),** Renmin University of China, 2021
- **Meritorious Winner (top 8%),** Mathematical Contest In Modeling (MCM/ICM), 2020
- **Second Prize,** China Undergraduate Mathematical Contest in Modeling (CUMCM), 2019

Relevant Research Skills

- **Language**

  TOEFL iBT: 99/120 (Reading 29, Listening 24, Speaking 22, Writing 24)
- **Programming Languages**

  Python, C/C++, SQL, MATLAB, Bash, HTML
- **Frameworks and Tools**

  PyTorch, TensorFlow, Flask, LaTeX , Docker, Git, MySQL

Extracurricular Activities

- **Class Representative** 2021.9 - 2024.6
- **League Branch Secretary** 2021.9 - 2024.6
- **President of Renmin University Computer Association** 2019.9 - 2020.6