Lu Dong

(716) 730-0429; Buffalo, NY
ludong@buffalo.edu

Generative AI/ Multimodal LLMs / Agentic AI

Personal Homepage
LinkedIn: Lu Dong

I am a final-year PhD candidate in Computer Science and Engineering at the University at Buffalo(UB). My research centers on generative AI, 3D human modeling, and agentic intelligence—specifically advancing human-centered video generation and interactive 3D digital humans endowed with domain expertise and empathetic social intelligence. My work spans large language models (LLMs), 3D vision, generative models, and multimodal foundation models. Key projects include sign-language generation, multi-person interaction, human–scene interaction, and human–robot collaboration. Previously, I gained experience in reinforcement learning, recommendation systems, and data visualization. I am now seeking full-time roles as a Research Scientist or Postdoctoral Researcher.

Education

University at Buffalo- State University of New York (UB), USA, *Ph.D. Program in Computer Science and Engineering.* 08/2021-Now
Rochester Institute of Technology (RIT), USA, *Ph.D. Program in Computing and Information Sciences.* 08/2020-05/2021
Xi'an Jiaotong University (XJTU), CHINA , *Master's Degree in Computer Science and Technology.* 08/2013-05/2016

Research Experience

National AI Institute for Exceptional Education, University at Buffalo-SUNY, Buffalo, NY, USA. **01/2024–Now**
Position: Research Assistant, Advisor: Ifeoma Nwogu

- **Research Focus: Interactive Behavior Modeling towards Education (VLM · Embodied Interaction · Social Intelligence)**
  - Topic: Agentic LLM Frameworks for Socially Intelligent Human–Robot Interaction. [AutoMisty, MistyPilot]
  - Topic: Embodied Human-Scene Interaction with Spatial Chain-of-Thought Reasoning.
  - Topic: Strategy-Driven 3D Adult Behavior Generation with Social Intelligence for Children's Knowledge Acquisition.
  - Topic: Enable LLMs to Interpret Students' Learning Cognitive States(eg: confusion interval) from Subtle Facial Cues.

Human Behavior Modeling Lab, University at Buffalo-SUNY, Buffalo, NY, USA. **08/2021–Now**
Position: Research Assistant, Advisor: Ifeoma Nwogu

- **Research Focus: Multimodal Modeling of Human Behavior Generation. (AIGC in 3D Human).**
  - Topic: 3D Sign Language Motion Reconstruction and Generation.[SignAvatar Page] [wSignGen Page]
  - Topic: Towards Open Domain Text- Driven Synthesis of Multi-Person Motions. [Multi-Person Page]
  - Topic: Language-guided Human Motion Synthesis with Atomic Actions. [ATOM Page]

YLAB, Xi'an Jiaotong University, Xi'an, Shaanxi, China. **08/2013–06/2016**
Position: Research Assistant, Advisor: Xinyu Yang

- **Research Focus: Exploring the Enduring MEME of Traditional Folk Songs (Musical Machine Learning).**
  - Topic: Unveiling Chinese Folk Songs' Melodic Characteristics via Pattern Recognition.
  - Topic: Towards a Systematic Classification and Benchmarking of Traditional Chinese Folk Songs.

Internship

NEC Laboratories America, Princeton, NJ. **05/2025–08/2025**
Position: Research Internship, In-Person, Mentor: Deep Patel and Iain Melvin

- Topic: Reasoning and Planning for LLM-Driven 3D Human Motion–Scene Interaction.

InnoPeak Technology (OPPO US Research), Seattle, WA, USA. **06/2023–08/2023**
Position: Research Internship, In-Person, Mentor: Dr. Mitch Hill and Dr. Guo-Jun Qi

- Topic: Text-Driven Realistic Multi-Person Motion Synthesis towards Controlled Quantities in Open-Domain. [Multi-Person Page]

InnoPeak Technology (OPPO US Research), Palo Alto, CA, USA. **05/2022–08/2022**
Position: Research Internship, In-Person, Mentor: Dr. Xun Xu and Dr. Shuxue Quan

- Topic: Human Pose Estimation for Home Fitness Apps Amidst Severe Self-Occlusion Challenges. [EfficientPose Page]

Selected Publications

1. **Lu Dong***, Xiao Wang*, Jingchen Sun, Ifeoma Nwogu, Srirangaraj Setlur, Venu Govindaraju."MistyPilot: An Agentic Fast–Slow Thinking LLM Framework for Misty Social Robots" *IEEE International Conference on Robotics and Automation (ICRA) under review*.

2. **Lu Dong***, Xiao Wang*, Sahana Rangasrinivasan, Ifeoma Nwogu, Srirangaraj Setlur, Venu Govindaraju."AutoMisty: A Multi-Agent LLM Framework for Automated Code Generation in the Misty Social Robot." *International Conference on Intelligent Robots and Systems (IROS 2025)*.

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3. **Lu Dong**, Xiao Wang, Ifeoma Nwogu. "Word-Conditioned 3D American Sign Language Motion Generation" *The 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP 2024)*.

4. **Lu Dong***, Xiao Wang*, Srirangaraj Setlur, Venu Govindaraju, Ifeoma Nwogu."Ig3D: Integrating 3D Face Representations in Facial Expression Inference" *The 18th European Conference on Computer Vision, ECCVW 2024*.

5. Mengyi Shan, **Lu Dong**, Yutao Han, Yuan Yao, Tao Liu, Ifeoma Nwogu, Guo-Jun Qi, Mitch Hill. "Towards Open Domain Text-Driven Synthesis of Multi-Person Motions." *The 18th European Conference on Computer Vision, ECCV 2024*.

6. **Lu Dong**, Lipisha Nitin Chaudhary, Fei Xu, Xiao Wang, Mason Lary, Ifeoma Nwogu. "SignAvatar: Sign Language 3D Motion Reconstruction and Generation." *The 18th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2024)*.

7. Yuanhao Zhai, Mingzhen Huang, Tianyu Luan, **Lu Dong**, Ifeoma Nwogu, Siwei Lyu, David Doermann, Junsong Yuan. “Language-guided Human Motion Synthesis with Atomic Actions." *The 31st ACM International Conference on Multimedia, 2023(ACM MM’23)*.

8. Fei Xu, Lipisha Nitin Chaudhary, **Lu Dong**, Srirangaraj Setlur, Venu Govindaraju, Ifeoma Nwogu. "A Study of Video-based Human Representation for American Sign Language Alphabet Generation." *(FG 2024)*.

Project Experience

Information Retrieval Project - Covid19 & Vaccine Analysis Search Engine [Page Link] **09/2021-12/2021 @UB**
- Scraped 50,000 tweets using Tweepy on COVID-19 and vaccines from diverse languages, countries, public, and authorities.
- Designed a full-stack web application with a Google-like front end and a flask-based backend, integrating deep learning models.
- Provided trend analysis of public and authoritative attitudes toward vaccines, along with fake news detection.

Natural Language Processing Project - Medical Tutoring ChatBot [Page Link] **09/2021-12/2021 @UB**
- Curated structured dialogue datasets from raw files such as HTML, PDF, and text documents.
- Developed a full-stack medical tutoring chatbot to improve medical literacy in underdeveloped regions of India.
- Proposed a framework for smoother dialogue transitions to enhance user attention and engagement.

Reinforcement Learning Project – Multi-Agent Collaborative Reinforcement Learning **09/2021-12/2021 @UB**
- Developed an RL system based on the OpenAI Gym environment, integrating 20+ mainstream reinforcement learning algorithms.
- Proposed an improved multi-agent collaboration algorithm for autonomous driving at intersections, incorporating a dynamic reward mechanism to enhance cooperative task performance.

Work Experience

Shaanxi Haina Electronic Technology Co., LTD, Xi’an, Shaanxi, China. **09/2016–04/2020**
Position: Principal Data Scientist
- Optimized the recommendation system, improving operations and decision clarity.
- Built and led the Information Collection & Retrieval Team, boosting efficiency by **20%**.
- Developed strategies that increased client conversions by **30%** and doubled total team revenue.

Academic Service

Academic Reviewer: Conference: ACL Rolling Review (ARR), February & July 2025;
International Conference on Computer Vision, (ICCV) 2025.
ACM Multimedia (MM), 2023 & 2024;
Journal: Computer Vision and Image Understanding (CVIU), 2025;
Machine Vision and Applications (Nature MVA), 2024, 2025;
IEEE Transactions on Affective Computing (TAFFC), 2024;

Conference Organization: Local Student Chair, IJCB 2024 @ Buffalo, NY.

Professional Service: Invited Judge for Hacking Competition (2022). Invited Speaker at UB Panel 2022-2024.

Academic Membership: ACL Member, IEEE Biometrics Council Member, IEEE Student Member.

Awards & Honor

- Best AI Project Award, UB, 2024; IJCB Conference Leadership Award, 2024; ECCV Travel Grant, 2024;
- National Graduate Academic Scholarship, 2013-2016; Excellent Graduate Student Honor, 2014-2016;
- National Endeavor Undergraduate Scholarship; Excellent Undergraduate Student Honor, 2010-2011.