Lu Dong

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Generative AI/ 3D Human/ LLMs Post-Traing

Personal Homepage
LinkedIn: Lu Dong

I am a final-year Ph.D. candidate at the University at Buffalo (SUNY). My research focuses on 3D human modeling, equipping 3D lifelike avatars with domain-specific expertise and empathic social intelligence. Meanwhile, I develop methods for text-driven multi-person motion video generation, spatial-CoT reasoning for 3D human–scene interaction, and multi-agent frameworks for human–robot interaction. My work spans 3D computer vision, generative models, vision–language alignment, large language model fine-tuning, reinforcement learning, LLM multi-agent frameworks, and data science applications such as information retrieval, recommendation, and visualization. I am seeking full-time research scientist or postdoctoral opportunities to expand my work.

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 (VLM · Embodied Interaction · Social Intelligence)**
  - 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.
  - Topic: Multi-Agent LLM Frameworks Driving Socially Intelligent Human–Robot Interaction. [AutoMisty, MistyPilot]

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

- **Research Focus: 3D Human Generation.**
  - 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]
  - Topic: Advancing Nonverbal Emotion Inference with 3D Human Mesh.[Ig3D 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**
  - Topic: Unveiling Chinese Folk Songs' Melodic Characteristics via Machine Learning.
  - 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 Google-like front-end, using HTML, CSS, Bootstrap, JavaScript, and Ajax.
- Developed a Flask-based backend, deployed on AWS EC2, integrating statistical models and semantic analysis models.
- Demonstrated trends in authoritative statements on COVID-19, public attitudes toward vaccines, and their broader impacts.

Natural Language Processing Project - Medical Tutoring ChatBot [Page Link] **09/2021-12/2021 @UB**

- Developed a medical tutoring chatbot framework to improve medical literacy in underdeveloped regions of India.
- Built a PDF-based database, trained an accessible chatbot, and generated high-quality dialogues with local government resources.
- Ensure a smooth and natural dialogue transition through the Manager and Adapter modules, further extending user engagement.

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:	ACL Rolling Review (ARR), February & July 2025; ACM Multimedia (MM), 2023 & 2024; IEEE Conference on Artificial Intelligence (CAI), 2025. Computer Vision and Image Understanding (CVIU), 2025; Machine Vision and Applications (Springer Nature), 2024; 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 Leadership Award, 2024;
- ECCV Travel Grant, 2024;
- National Graduate Academic Scholarship, 2013-2016;
- National Endeavor Undergraduate Scholarship for Outstanding Students, 2010-2011;
- Excellent Graduate Student Honor, 2014-2016;
- Excellent Undergraduate Student Honor, 2010-2011.