Lu Dong

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Generative AI/ Embodied AI /Agentic AI

Personal Homepage
LinkedIn: Lu Dong

I'm a Ph.D. candidate in Computer Science and Engineering at the University at Buffalo (SUNY). My research focuses on human-centered generative modeling at the intersection of computer vision, multimodal foundation models, 3D motion generation, and agentic systems. My projects span sign-language generation, multi-person interaction, human–scene interaction, and human–robot collaboration. I also have prior experience in reinforcement learning, recommendation systems, and data visualization. I enjoy translating research into efficient pipelines that can run reliably in real-world products.

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 3D Situated Modeling for Education (Agentic AI · Embodied Data Generation · Spacial AI)**
  - Topic: Agentic LLM Frameworks for Socially Intelligent Human– Social Robot Interaction. [AutoMisty-IROS'25][MistyPilot]
  - Topic: Spatial Chain-of-Thought Reasoning on Human-Scene Interaction. [CoT-HSI]
  - Topic: Strategy-Driven 3D Adult Behavior Generation for Children's Knowledge Acquisition. [StrategyGen]
  - Topic: LLM-Driven Interpretation of Students' Learning Cognitive States (e.g., Confusion Intervals) from Subtle Facial Cues (eg: Facial Action Units, Valence–Arousal, Gaze Tracking, and Eye Blink Patterns). [SCOPE]

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 Behaviors (cVAE · VQ-VAE · Diffusion Models · LLM Post-Training).**
  - Topic: 3D American Sign Language Motion Reconstruction and Generation.[SignAvatar- IEEE FG'24] [wSignGen-EMNLP'24]
  - Topic: Towards Open Domain Text- Driven Synthesis of Multi-Person Motions. [Multi-Person- ECCV'24]
  - Topic: Language-guided Human Motion Synthesis with Atomic Actions. [ATOM-ACMMM'23]

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 (Music Machine Learning · MIDI· Audio Analysis).**
  - Topic: Exploring the General Melodic Characteristics of XinTianYou Folk Songs. [XinTianYou-SMC'15]
  - Topic: Towards a Systematic Classification and Benchmarking of Chinese Folk Songs.[Chinese Folk Songs]

INDUSTRY EXPERIENCE

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

- Focus: Reasoning and Planning for LLM-Driven 3D Human Motion–Scene Interaction. [CoT-HSI]

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

- Focus: Number-Controlled Multi-Person Motion Synthesis Towards Open-Domain. [Multi-Person- ECCV'24]

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

- Focus: Human pose estimation for fitness under severe self-occlusion. [Pose Estimation]

Shaanxi Haina Electronic Technology Co., LTD, Xi'an, Shaanxi, China.   **09/2016–04/2020**
Position: Principal Data Scientist

- Developed the recommendation system, improving user satisfaction and overall product experience.
- 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.

EDUCATION

University at Buffalo- State University of New York (UB), USA
Ph.D. in Computer Science and Engineering.   08/2021- Present
Rochester Institute of Technology, USA
Ph.D. in Computing and Information Sciences. (GPA 4.0; transferred with advisor)   08/2020-05/2021
Xi'an Jiaotong University (XJTU), CHINA
M.S. in Computer Science and Technology   08/2013-05/2016

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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" *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)*.

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)*.

SELECTED PROJECTS

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.

ACADEMIC SERVICE

Academic Reviewer:	**Conference**: ACL Rolling Review (ARR), February & July 2025; ACM Multimedia (MM), 2023 & 2024; **Journal**: Computer Vision and Image Understanding (CVIU), 2025, 2026; Machine Vision and Applications (Nature MVA), 2024, 2025; IEEE Transactions on Affective Computing (TAFFC), 2024;
IEEE Conference Organization:	Local Student Chair, IJCB Conference 2024 @ Buffalo, NY.
Professional Competition:	Invited Judge for UB Hacking Competition (2022).
Invited Talk:	Invited talk at Women in Tech Western New York, 2025; Invited talk on 'AI Research and Career Development' 2024;
Academic Membership:	ACL Member, IEEE Biometrics Council Member, IEEE Student Member.

AWARDS & HONOR

- PhD Research Award, UB, 2025;   Best AI Project Award, UB, 2024;
- IJCB Conference Leadership Award, 2024;   ECCV Conference Grant, 2024;
- National Graduate Academic Scholarship, 2013–2016;   Outstanding Graduate Student Award, 2014 and 2015;
- National Endeavor Scholarship for Outstanding Undergraduates, 2010;   Outstanding Undergraduate Student Award, 2010.