# Lu Dong

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

Generative AI / Multimodal 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 modeling across computer vision, multimodal foundation models, 3D motion generation, embodied AI, and agentic systems. I have worked on video generation, 3D face, hand, and body modeling, sign language generation, multi-person interaction, human–scene interaction, and human–robot collaboration. I also have experience in recommendation system, reinforcement learning, simulation, and visualization. I enjoy turning research ideas into efficient and reliable real-world systems.

## 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: Autoregressive Spatial Reasoning in Human–Scene-Object Interaction. [Spatial-HSI]
  - Topic: Agentic LLM Frameworks for Socially Intelligent Human–Social Robot Interaction. [AutoMisty-IROS'25][MistyPilot]
  - Topic: Adult–Child Multimodal Generation for Vocabulary Acquisition.[StrategyGen]
  - Topic: A Multi-Agent Framework for Detecting ASD Intervention Strategies in Parent-Child Shared Reading [CVPR'26]
  - Topic : An Expert-Validated Benchmark for Confusion Recognition and Localization in Educational Videos [CVPR'26]

**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: Diffusion-based 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*, Mark Frank, Srirangaraj Setlur, Venu Govindaraju, and Ifeoma Nwogu. "ConfusionBench: An Expert-Validated Benchmark for Confusion Recognition and Localization in Educational Videos." *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2026)*.

2. **Lu Dong***, Xiao Wang*, Ifeoma Nwogu, Srirangaraj Setlur, and Venu Govindaraju. "InterventionLens: A Multi-Agent Framework for Detecting ASD Intervention Strategies in Parent-Child Shared Reading." *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2026)*.

3. **Lu Dong***, Xiao Wang*, Jingchen Sun, Ifeoma Nwogu, Srirangaraj Setlur, and Venu Govindaraju. "MistyPilot: An Agentic Fast–Slow Thinking LLM Framework for Misty Social Robots." *Under review*.

4. **Lu Dong***, Xiao Wang*, Sahana Rangasrinivasan, Ifeoma Nwogu, Srirangaraj Setlur, and 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)*.

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

6. **Lu Dong***, Xiao Wang*, Srirangaraj Setlur, Venu Govindaraju, and Ifeoma Nwogu. "Ig3D: Integrating 3D Face Representations in Facial Expression Inference." *Proceedings of the 18th European Conference on Computer Vision (ECCV 2024)*.

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

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

9. Lipisha Chaudhary, Enjamamul Hoq, **Lu Dong**, Henry Adler, and Ifeoma Nwogu. "Large-Scale 3D Representations for Continuous American Sign Language Understanding." *The 20th IEEE Conference on Automatic Face and Gesture Recognition (FG 2026)*.

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

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

## Academic Service

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| **Academic Reviewer (20+):** | **Conference**: ACL Rolling Review (ARR), 2025, 2026;<br>ACM Multimedia (MM), 2023 & 2024; IEEE Face and Gesture (FG) 2026; IEEE ICME 2026<br>**Journal**: Computer Vision and Image Understanding (CVIU), 2025, 2026;<br>Machine Vision and Applications (Nature MVA), 2024, 2025;<br>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;<br>Invited talk on 'AI Research and Career Development' 2024; |
| **Academic Membership:** | ACL Member, IEEE Biometrics Council Member, IEEE Student Member. |

## Latest Awards & Honor

- PhD Research Award, UB, 2025;
- Best AI Project Award, UB, 2024;
- IJCB Conference Leadership Award, 2024; ECCV Conference Grant, 2024; UB GSA 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.