Lu Dong

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Generative AI/ Computer Vision / LLMs

Personal Homepage
LinkedIn: Lu Dong

I am a 4th-year PhD student at the University at Buffalo-SUNY (UB), focusing on Human Behavior Modeling, including AIGC, 3D Human Motion Generation, Vision-Language Models, Multi-Person Interaction, Human Scene Interaction, Expression & Cognitive Inference, and Social Intelligence. I aim to advance computer vision (CV), large language models(NLP), generative models(GM), reinforcement learning(RL), and statistical machine learning to better understand human behavior and serve human needs. I also have experience in chatbots, information retrieval, and search optimization. I am seeking full-time research roles and postdoc opportunities.

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: Nonverbal Behavior Modeling for Exception Children's Education (VLM + AIGC + Social/Emotion)**
  - Embodied AI: Modeling 3D Human–Object–Scene Interaction Dynamics with an LLM-Based World Model.
  - 3D Human Modeling: Improve Nonverbal Emotion Inference with 3D Human Mesh.[Ig3D Page]
  - Multimodal Generation: Enhancing Social Intelligence in 3D Human Embodiment (Leveraging LLMs, Diffusion Models, etc.)
  - LLM-based Interpretability: LLM-Driven Cognitive State Interpretation, Reasoning, and Localization in Online Learning Videos (VLM and Tool-Agents).

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 and AI-Generated Content (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**
  - 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: 3D Human Scene Interaction- Motion Planning and Reasoning.

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

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

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4. 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*.

5. **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)*.

6. 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)*.

7. 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.

Reinforcement Learning Project – Multi-Agent Collaborative Reinforcement Learning **09/2021-12/2021 @UB**

- Developed an RL system in the OpenAI Gym Environment, implementing Q-Learning, SARSA, DQN, DDQN, Actor-Critic, and PPO.
- Optimized multi-agent collaboration with dynamic reward systems, enhancing cooperative task performance.
- Established benchmarks for reinforcement learning in multi-agent environments.

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

Conference Organization:	Local Student Chair, IJCB 2024 @ Buffalo, NY. Vertical Chair and Co-Organizer, Conference on Artificial Intelligence-CAI2025 Workshop.
Academic Reviewer:	Computer Vision and Image Understanding (CVIU), 2025; Machine Vision and Applications (Springer Nature), 2024; IEEE Transactions on Affective Computing (TAFFC), 2024; ACL Rolling Review (ARR), February & July 2025; ACM Multimedia (MM), 2023 & 2024; IEEE Conference on Artificial Intelligence (CAI), 2025.
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.