Lu Dong

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Generative AI/ Computer Vision / LLMs

Personal Homepage
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I am a final-year PhD student at the University at Buffalo (SUNY), specializing in human behavior modeling with expertise in 3D human motion generation, vision-language models, multi-person interaction, human-scene interaction, and social intelligence. My research combines computer vision, large language models, generative modeling, reinforcement learning, and statistical machine learning to advance understanding of human behavior and its interaction with the world. I also have experience in chatbots, information retrieval, and search optimization. I am seeking full-time research roles or postdoctoral 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.*

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.