

Dongyu Luo

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EDUCATION

National University of Singapore Incoming Ph.D. Student in Computer Science <i>Advisor: Prof. Weiyu Liu</i>	Spring 2027 – Singapore
The University of Hong Kong Bachelor of Science in Decision Analytics <i>Top 3; First Class Honours; Dean's Honours List</i>	Sep 2022 – Aug 2026 Hong Kong SAR
University of Maryland, College Park Exchange Student <i>Advisor: Prof. Ruohan Gao</i>	Jan 2025 – May 2025 Maryland, USA

PUBLICATIONS

- [1] **ControlTac: Scaling Tactile Data with Physically Controlled Tactile Image Generation**
Dongyu Luo*, Kelin Yu*, Amir-Hossein Shahidzadeh, Cornelia Fermüller, Yiannis Aloimonos, and Ruohan Gao
CoRL, 2026; *ICCV CDEL Workshop (Oral)*, 2025 [Link]
- [2] **SimDiffPDE: Simple Diffusion Baselines for Solving Partial Differential Equations**
Dongyu Luo, Jianyu Wu, Qianhong Ma, Jing Wang, Hairun Xie, Xiangyu Yue, Wanli Ouyang, Miao Zhang, and Shixiang Tang
Under submission [Link]

*Equal contribution.

RESEARCH EXPERIENCE

Sharpa <i>Advisors: Mr. Kaifeng Zhang and Prof. Weiyu Liu</i>	Jul 2026 – Present Shanghai, China
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- **Dexterous manipulation**

Researching policy learning and real-world deployment for dexterous robotic hands, including vision-language-action models, world models, and reinforcement learning, with a focus on robust manipulation.

- **Human intervention and value learning**

Exploring how human interventions can inform value learning and support continual improvement of robot policies.

UMD Multisensory Machine Intelligence Lab <i>Advisors: Prof. Ruohan Gao and Mr. Kelin Yu</i>	Jan 2025 – Present Maryland, USA
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- **Physics-guided tactile generation**

Developed ControlTac, a two-stage framework for tactile-image generation conditioned on contact force and position; validated synthetic data across multiple downstream tasks to address tactile data scarcity.

- **Neuro-symbolic sim-to-real transfer**

Developing a neuro-symbolic framework combining sparse physics simulations with generative rendering to generate dynamic tactile data for robot policy learning and sim-to-real transfer, aiming to reduce hazardous data collection and costly soft-body simulation.

- **Physics-informed learning and neural operators**

Investigated physics-informed neural networks and neural operators for solving partial differential equations (PDEs).

- **Generative modeling for PDEs**

Developed SimDiffPDE, a diffusion-based PDE solver with a multi-scale noise strategy to capture information across spatial frequencies, achieving state-of-the-art results across multiple datasets and grid types.

SELECTED PROJECTS

PT: Transformer-Based Hospital Readmission Predictor [Link]

STAT3612

- Ranked 1st out of 27 teams in a course Kaggle competition for 30-day hospital readmission prediction; developed a multimodal AI model using a Transformer to fuse electronic health records, medical images, and clinical notes.

RetailLM: Large Language Model for Retail [Link]

STAT4011

- Developed a retail-focused LLM system integrating proprietary data, web-scraped content, and user information for multi-turn dialogue and retrieval; incorporated clustering, regression, time-series forecasting, and sentiment analysis.

LEADERSHIP AND SERVICE

Beyond the Pivot

Oct 2022 – Oct 2023

Team Leader, Volunteer Teaching

Yunnan, China & Hong Kong SAR

- Led a volunteer teaching team in Ninglang Yi Autonomous County, Lijiang; organized team training, on-site logistics, curriculum delivery, and post-program reporting while also teaching classes.

SKILLS

Programming: Python, C/C++, MATLAB, R; $\text{\LaTeX}$.**Languages:** Chinese (Native), English (Fluent), Cantonese (Intermediate).

HONORS AND AWARDS

Rosita King Ho Scholarship

May 2025

Gold Award, China Mainland, Hong Kong and Macao Digital Economy Innovation and Entrepreneurship Competition

Jan 2024

National Bronze Medal, China National Biology Olympiad (CNBO)

Oct 2021

Provincial First Prize, Chinese Physics Olympiad (CPhO)

Sep 2021