Zhengyi (Zen) Luo

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Research Interests

Fields: Computer Vision, Robotics, Machine Learning
Topics: Embodied AI, Humanoid Control, Human Pose Estimation, Physics Simulation

Education

Carnegie Mellon University   *Advisor: Prof. **Kris Kitani***
Ph.D. in Robotics, Robotics Institute, School of Computer Science   *Aug 2021-Present*
Carnegie Mellon University   *Advisor: Prof. **Kris Kitani***
M.S. in Robotics (MSR), Robotics Institute, School of Computer Science, GPA: 4.24/4.33   *Aug 2019-Aug 2021*
University of Pennsylvania   *Advisor: Prof. **Kostas Daniilidis***
B.S.E. in Computer Science, School of Engineering and Applied Science, GPA: 3.94/4.00   *Aug 2015-May 2019*

Publications and Manuscripts

∗ indicates equal contribution

[1] Learning Human-to-Humanoid Real-Time Whole-Body Teleoperation
Tairan He∗, **Zhengyi Luo**∗, Wenli Xiao, Chong Zhang, Kris Kitani, Changliu Liu Guanya Shi
In submission

[2] Real-Time Simulated Avatar from Head-Mounted Sensors
Zhengyi Luo, Jinkun Cao, Rawal Khirodkar, Alexander Winkler, Jing Huang, Kris Kitani, Weipeng Xu
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024

[3] PACER+: On-Demand Pedestrian Animation Controller in Driving Scenarios
Jingbo Wang∗, **Zhengyi Luo**∗, Ye Yuan, Yixuan Li, Bo Dai
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024

[4] Ego-Exo4D: Understanding Skilled Human Activity from First- and Third-Person Perspectives
K Grauman et al.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024

[5] Universal Humanoid Motion Representations for Physics-Based Control
Zhengyi Luo, Jinkun Cao, Josh Merel, Alexander Winkler, Jing Huang, Kris Kitani, Weipeng Xu
International Conference on Learning Representations ((ICLR)), 2023, **(spotlight)**

[6] Perpetual Humanoid Control for Real-time Simulated Avatars
Zhengyi Luo, Jinkun Cao, Alexander Winkler, Kris Kitani, Weipeng Xu
International Conference on Computer Vision ((ICCV)), 2023

[7] Learning Human Dynamics in Autonomous Driving Scenarios
Jingbo Wang, Ye Yuan, **Zhengyi Luo**, Kevin Xie, Dahua Lin, Umar Iqbal, Sanja Fidler, Sameh Khamis
International Conference on Computer Vision ((ICCV)), 2023

[8] Trace and Pace: Controllable Pedestrian Animation via Guided Trajectory Diffusion
Davis Rempe∗, **Zhengyi Luo**∗, Xue Bin Peng, Ye Yuan, Kris Kitani, Karsten Kreis, Sanja Fidler, Or Litany
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023

[9] Embodied Scene-aware Human Pose Estimation
Zhengyi Luo∗, Shun Iwase∗, Ye Yuan, Kris Kitani
Thirty-Fifth Annual Conference on Neural Information Processing Systems (NeurIPS), 2022

[10] Transform2Act: Learning a Transform-and-Control Policy for Efficient Agent Design
Ye Yuan, Yuda Song, **Zhengyi Luo**, Wen Sun, Kris Kitani
International Conference on Learning Representations (ICLR), 2022, **(Oral Presentation)**

[11] Dynamics-Regulated Kinematic Policy for Egocentric Pose Estimation
Zhengyi Luo, Ryo hachiuma, Ye Yuan, Kris M. Kitani
Thirty-Fifth Annual Conference on Neural Information Processing Systems (NeurIPS), 2021

[12] 3D Human Motion Estimation via Motion Compression and Refinement
Zhengyi Luo, S. Alireza Golestaneh, Kris M. Kitani
Fifteenth Asian Conference on Computer Vision (ACCV), 2020, *(Oral Presentation)*

[13] Learning Shape Representations for Clothing Variations in Person Re-Identification
Yu-Jhe Li, **Zhengyi Luo**, Xinshuo Weng, Kris M. Kitani
arXiv:2003.07340, 2020

[14] Cross-Domain 3D Equivariant Image Embeddings
Carlos Esteves, Avneesh Sud, **Zhengyi Luo**, Kostas Daniilidis, Ameesh Makadia
Thirty-seventh International Conference on Machine Learning (ICML), 2019

[15] Cloud Chaser: Real Time Deep Learning Computer Vision on Low Computing Power Devices
Zhengyi Luo, Austin Small, Liam Dugan, Stephen Lane
The Eleventh International Conference on Machine Vision (ICMV), 2018

[16] The rural−urban stress divide: Obtaining geographical insights through Twitter
Kokil Jaidka, Sharath Chandra Guntuku, Jane H Lee, **Zhengyi Luo**, Anneke Buffone, Lyle H Ungar
Computers in Human Behavior, 2020: 106544

Employment

Meta Reality Labs	*August 2022-Present*
Visiting Researcher	*PI: Dr.* **Weipeng Xu**

NVIDIA Toronto Artificial Intelligence Lab	*May 2022-Aug 2022*
Research Scientist Intern	*PI: Prof.* **Sanja Fidler**

Apple Inc., Technology Development Group (AR/VR)	*August 2019-Present*
3D Software Engineer Intern	*PI:* **Novaira Masood**

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3D Software Engineer Intern	*PI:* **Novaira Masood**

Awards

Meta AI Mentorship Program	*Sept 2023*
Qualcomm Innovation Fellowship	*Sept 2022*
PennApps XVII (the world's largest college hackathon), 1/160, Grand Prize	*Jan 2018*

Professional Services

Conference Reviewer: ICML, ICLR, NeurIPS, CVPR, ICCV, ECCV, Siggraph, Siggraph Asia
Journal Reviewer: IJCV, TMM

Teaching Experience

Teaching Assistant

Computer Vision (16-720A), CMU	Instructors: Deva Ramanan	*Spring 2022*
Computer Vision (16-720B), CMU	Instructors: Kris Kitani	*Fall 2021*
Computer Vision (16-720B), CMU	Instructors: Kris Kitani & Srinivasa Narasimhan	*Fall 2020*
Deep Learning (CIS-700), UPenn	Instructor: Konrad Kording	*Spring 2019*
Data Structures and Algorithms (CIS-121), UPenn	Instructor: Rajiv Gandhi	*Fall 2016 & Spring 2017*

Skills & Interests

Programming Languages:	Python, C++, C, Swift, Java, C#, Javascript, SQL, OCaml, MATLAB
Platforms & Tools:	PyTorch, TensorFlow, Mujoco, Bullet, Spacy, Unity3D, Hololens, xcode, Raspberry Pi, Android Studio, Git
Interests:	Sci-Fi, Biographies, Cooking , Cycling, Tech Gadgets
Organizations:	Eta Kappa Nu (IEEE-HKN), UPenn Lambda Chapter; Tau Beta Pi, UPenn Delta Chapter