Ye Yuan

Research Scientist, NVIDIA
yey@nvidia.com ◇ https://www.ye-yuan.com ◇ Last update: 08/23

Research Interests

Fields: Computer Vision, Machine Learning, Robotics
Topics: Digital Humans, Generative AI, Embodied Agents, Physics Simulation, Reinforcement Learning

Education

Carnegie Mellon University — Aug 2017 - May 2022
Ph.D. in Robotics — *Advisor: Prof. Kris Kitani*

Carnegie Mellon University — Aug 2015 - Dec 2016
M.S. in Computer Science — *Advisor: Prof. Stelian Coros*

Zhejiang University, China — Aug 2011 - Jun 2015
B.E. in Computer Science and Technology — *Advisor: Prof. Kun Zhou*

Employment

NVIDIA Research — May 2022 - Present
Research Scientist

Robotics Institute, Carnegie Mellon University — Aug 2017 - April 2022
Ph.D. Research Assistant — *Supervisor: Prof. Kris Kitani*

Facebook Reality Lab Pittsburgh — May 2020 - Aug 2020
Research Intern — *Supervisor: Dr. Jason Saragih*

Facebook Reality Lab Pittsburgh — May 2018 - Aug 2018
Research Intern — *Supervisors: Dr. Ying Yang and Dr. Yaser Sheikh*

Disney Research Pittsburgh — Feb 2017 - Jul 2017
Research Intern — *Supervisor: Prof. Stelian Coros*

State Key Laboratory of CAD&CG, Zhejiang University — Jun 2014 - Jul 2015
Research Assistant — *Supervisor: Prof. Kun Zhou*

Awards & Honors

Fellowships

NVIDIA Graduate Fellowship (1 of 5 awardees from 350+ applicants worldwide) — 2021-2022
Qualcomm Innovation Fellowship ($100k award, 1 of 13 in North America) — 2020-2021
Apple AI/ML Fellowship Nomination (1 of 5 nominees at CMU) — 2020

Awards

SIGGRAPH 2023 Best Paper Honorable Mention — 2023
ECCV 2022 Outstanding Reviewer — 2022
ICLR 2021 Outstanding Reviewer — 2021
Fifth place in CMU Annual Parallelism Competition (100+ teams) — 2016
Outstanding Undergraduate Thesis of Zhejiang University (Top 1%) — 2015

Outstanding Student Research Training Project (SRTP) of Zhejiang University 2014

First Prize in China National Innovative Physics Competition 2013

First Class Scholarship of Zhejiang University 2012

Preprints

[1] All-In-One Drive: A Comprehensive Perception Dataset with High-Density Long-Range Point Clouds
Xinshuo Weng, Yunze Man, Jinhyung Park, **Ye Yuan**, Matthew O'Toole, Kris Kitani
In Submission, 2022

Publications

[2] PhysDiff: Physics-Guided Human Motion Diffusion Model
Ye Yuan, Jiaming Song, Umar Iqbal, Arash Vahdat, Jan Kautz
International Conference on Computer Vision (ICCV), 2023 (Oral Presentation)

[3] 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

[4] Learning Physically Simulated Tennis Players from Broadcast Videos
Haotian Zhang, **Ye Yuan**, Viktor Makoviychuk, Yunrong Guo, Xue Bin Peng, Sanja Fidler, Kayvon Fatahalian
SIGGRAPH, 2023 (Best Paper Honorable Mention)

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

[6] RGB-Only Reconstruction of Tabletop Scenes for Collision-Free Manipulator Control
Zhenggang Tang, Balakumar Sundaralingam, Jonathan Tremblay, Bowen Wen, **Ye Yuan**, Stephen Tyree, Charles Loop, Alexander Schwing, Stan Birchfield
IEEE International Conference on Robotics and Automation (ICRA), 2023

[7] GLAMR: Global Occlusion-Aware Human Mesh Recovery with Dynamic Cameras
Ye Yuan, Umar Iqbal, Pavlo Molchanov, Kris Kitani, Jan Kautz
Conference on Computer Vision and Pattern Recognition (CVPR), 2022 (Oral Presentation - Top 4.2%)

[8] 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 – Top 1.6%)

[9] Online No-regret Model-Based Meta RL for Personalized Navigation
Yuda Song, **Ye Yuan**, Wen Sun, Kris Kitani
Learning for Dynamics & Control (L4DC), 2022

[10] Patcher: Patch Transformers with Mixture of Experts for Precise Medical Image Segmentation
Yanglan Ou, **Ye Yuan**, Xiaolei Huang, Stephen T.C. Wong, John Volpi, James Z. Wang, Kelvin Wong
International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2022

[11] Dynamics-Regulated Kinematic Policy for Egocentric Pose Estimation
Zhengyi Luo, Ryo Hachiuma, **Ye Yuan**, Kris Kitani
Advances in Neural Information Processing Systems (NeurIPS), 2021

[12] AgentFormer: Agent-Aware Transformers for Socio-Temporal Multi-Agent Forecasting
Ye Yuan, Xinshuo Weng, Yanglan Ou, Kris Kitani
International Conference on Computer Vision (ICCV), 2021

[13] SimPoE: Simulated Character Control for 3D Human Pose Estimation
Ye Yuan, Shih-En Wei, Tomas Simon, Kris Kitani, Jason Saragih
Conference on Computer Vision and Pattern Recognition (CVPR), 2021 (Oral Presentation – Top 4.2%)

[14] PTP: Parallelized 3D Tracking and Prediction with Graph Neural Networks and Diversity Sampling
Xinshuo Weng*, **Ye Yuan***, Kris Kitani (*Equal Contribution)
IEEE Robotics and Automation Letters (RA-L) and ICRA, 2021 (Best Student Paper Award Candidate – Top 2%)

[15] LambdaUNet: 2.5 D Stroke Lesion Segmentation of Diffusion-weighted MR Images
Yanglan Ou, **Ye Yuan**, Xiaolei Huang, Kelvin Wong, John Volpi, James Z. Wang, Stephen T.C. Wong
International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2021

[16] Residual Force Control for Agile Human Behavior Imitation and Extended Motion Synthesis
Ye Yuan, Kris Kitani
Advances in Neural Information Processing Systems (NeurIPS), 2020

[17] DLow: Diversifying Latent Flows for Diverse Human Motion Prediction
Ye Yuan, Kris Kitani
European Conference on Computer Vision (ECCV), 2020

[18] Efficient Non-Line-of-Sight Imaging from Transient Sinograms
Mariko Isogawa, Dorian Yao Chan, **Ye Yuan**, Kris Kitani, Matthew O'Toole
European Conference on Computer Vision (ECCV), 2020

[19] Diverse Trajectory Forecasting with Determinantal Point Processes
Ye Yuan, Kris Kitani
International Conference on Learning Representations (ICLR), 2020

[20] Optical Non-Line-of-Sight Physics-based 3D Human Pose Estimation
Mariko Isogawa, **Ye Yuan**, Matthew O'Toole, Kris Kitani
Conference on Computer Vision and Pattern Recognition (CVPR), 2020

[21] Generative Hybrid Representations for Activity Forecasting with No-Regret Learning
Jiaqi Guan, **Ye Yuan**, Kris Kitani, Nick Rhinehart
Conference on Computer Vision and Pattern Recognition (CVPR), 2020 (Oral Presentation – Top 5.7%)

[22] Back-Hand-Pose: 3D Hand Pose Estimation for a Wrist-worn Camera via Dorsum Deformation Network
Erwin Wu, **Ye Yuan**, Hui-Shyong Yeo, Aaron Quigley, Hideki Koike, Kris Kitani
ACM Symposium on User Interface Software and Technology (UIST), 2020

[23] MonoEye: Multimodal Human Motion Capture System Using a Single Ultra-Wide Fisheye Camera
Dong-Hyun Hwang, Kohei Aso, **Ye Yuan**, Kris Kitani, Hideki Koike
ACM Symposium on User Interface Software and Technology (UIST), 2020

[24] Semi-Supervised Cervical Dysplasia Classification With Learnable Graph Convolutional Network
Yanglan Ou, Yuan Xue, **Ye Yuan**, Tao Xu, Vincent Pisztora, Jia Li, Xiaolei Huang
International Symposium on Biomedical Imaging (ISBI), 2020

[25] Ego-Pose Estimation and Forecasting as Real-Time PD Control
Ye Yuan, Kris Kitani
International Conference on Computer Vision (ICCV), 2019

[26] 3D Ego-Pose Estimation via Imitation Learning
Ye Yuan, Kris Kitani
European Conference on Computer Vision (ECCV), 2018

[27] Computational Design of Transformables
Ye Yuan, Changxi Zheng, Stelian Coros

ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA), 2018

[28] Interactive Co-Design of Form and Function for Legged Robots using the Adjoint Method
Ruta Desai, Beichen Li, **Ye Yuan**, Stelian Coros
International Conference on Climbing and Walking Robots (CLAWAR), 2018

[29] Computational Abstractions for Interactive Design of Robotic Devices
Ruta Desai, **Ye Yuan**, Stelian Coros
IEEE International Conference on Robotics and Automation (ICRA), 2017

[30] Interacting with Intelligent Characters in AR
Gokcen Cimen, **Ye Yuan**, Robert W Sumner, Stelian Coros, Martin Guay
Artificial Intelligence Meets Virtual and Augmented Worlds (AIVRAR), 2017

[31] Continuous Optimization of Interior Carving in 3D Fabrication
Yue Xie, **Ye Yuan**, Xiang Chen, Changxi Zheng, Kun Zhou
Frontiers of Computer Science, 2017

Patents

[1] Simulated Control for 3-Dimensional Human Poses in Virtual Reality Environments
Jason Saragih, Shih-En Wei, Tomas Simon Kreuz, Kris Makoto Kitani, **Ye Yuan**
US Patent App. 17556429, 2022

[2] Automatically Generating Quadruped Locomotion Controllers
Martin Guay, Moritz Geilinger, Stelian Coros, **Ye Yuan**, Robert Walker Sumner
US Patent No. 10553009, 2020

[3] Modeling Interactions Between Simulated Characters and Real-World Objects for More Realistic Augmented Reality
Martin Guay, Gökçen Çimen, Dominik Tobias Borer, Simone Guggiari, **Ye Yuan**, Stelian Coros, Robert Walker Sumner
US Patent No. 10445940, 2019

Academic Talks

Invited Talks

Invited Speaker at MPI, Perceiving Systems Department	2022
Invited Speaker at ETH Zurich, Computer Vision and Learning Group	2021
Invited Speaker at University of Alabama, Machine Learning and Optimal Control Class	2021
Invited Speaker at 16th CSL student conference	2021
Invited Speaker at UIUC, Robotics Seminar	2021
Invited Speaker at Wayve	2020
Invited Speaker at Qualcomm	2020

Professional Service

Organizer

Co-Organizer, IJCAI 2021 Workshop on Artificial Intelligence for Autonomous Driving	2021
Co-Organizer, IROS 2021 Workshop on Multi-Agent Interaction and Relational Reasoning	2021

Conference Reviewer

NeurIPS, ICML, ICLR, CVPR, ICCV, ECCV, AAAI, ICRA, SIGGRAPH, SIGGRAPH Asia, Eurographics

Journal Reviewer

JMLR, TMLR, TPAMI, TIP, RA-L

University Activity

PhD Speaking Qualifier Committee, PhD in Robotics, Erica Weng	2022
Thesis Committee, MS in Robotics, Zhengyi Luo	2021
Thesis Committee, MS in Robotics, Scott Sun	2020
Thesis Committee, MS in Robotics, Tanya Marwah	2019

Research Mentoring

Graduate Students

Erica Weng (CMU RI PhD)	2022 - Present
Zhengyi Luo (CMU MSR, now PhD at CMU RI)	2020 - Present
Yuda Song (CMU MSML)	2021 - Present
Shun Iwase (CMU MSR, now PhD at CMU RI)	2021 - Present
Xuhua Huang (CMU MSCV)	2021
Sandy Sun (CMU MS Robotics, now at Amazon)	2020
Scott Sun (CMU MS Robotics, now at Amazon)	2020
Erwin Wu (Tokyo Tech PhD)	2020
Dong-Hyun Hwang (Tokyo Tech PhD)	2019
Ryo Hachiuma (Keio University PhD)	2019
Jiaqi Guan (UIUC PhD)	2018-2019
Tanya Marwah (CMU MS Robotics, now PhD at CMU MLD)	2018-2019

Industry Visitors

Mariko Isogawa (NTT Media Intelligence Lab researcher)	2019-2020

Teaching

Teaching Assistance

Computer Vision (16-720), CMU.	Instructor: Srinivasa Narasimhan	Spring 2020
Computer Vision (16-385), CMU.	Instructors: Kris Kitani & Srinivasa Narasimhan	Fall 2019

Guest Lecturer

Computer Vision (16-720), CMU.	Variational Inference and VAE	Fall 2020