Tingwu Wang

Senior Research Scientist at Generalist Embodied Agent Research, NVIDIA
Personal Website: tingwuwang.github.io

Education

University of Toronto, Ontario, Canada
PhD in Computer Science — *Jan. 2018 - June 2022*
Thesis: Learning Scalable Physics-based Motion Skills with Reinforcement Learning
Advisor: Prof. Sanja Fidler and Prof. Jimmy Ba

Master of Computer Science — *Jul. 2016 - Jan. 2018*
Advisor: Prof. Sanja Fidler — GPA: 4.00/4.00

Tsinghua University, Beijing, China — *Aug. 2012 - Jul. 2016*
Bachelor of Electronic Engineering — GPA: 91.1/100

Technische Universität München, Bavaria, Germany — *Aug. 2014 - Feb. 2015*
Exchange student in Department of Informatics

Publications, Preprints and Patents

Zhengyi Luo*, Ye Yuan*, **Tingwu Wang***, Chenran Li*, Sirui Chen, Fernando Castañeda, Zi-Ang Cao, Jiefeng Li, David Minor, Qingwei Ben, Xingye Da, Runyu Ding, Cyrus Hogg, Lina Song, Edy Lim, Eugene Jeong, Tairan He, Haoru Xue, Wenli Xiao, Zi Wang, Simon Yuen, Jan Kautz, Yan Chang, Umar Iqbal, Linxi "Jim" Fan, Yuke Zhu, *SONIC: Supersizing Motion Tracking for Natural Humanoid Whole-Body Control*, Arxiv, 2025.

Jason Peng, Ye Yuan, Davis Winston Rempe, Umar Iqbal, Or Litany, **Tingwu Wang**, Chen Tessler, Jan Kautz, Sanja Fidler, Michael Buttner, *Machine Learning Models for Generative Human Motion Simulation*, US Patent, 2025.

Tingwu Wang, Yunrong Guo, Maria Shugrina, Sanja Fidler, *Neural Network Motion Controller*, US Patent, 2023.

Tingwu Wang, Yunrong Guo, Xie Cheng, Xue Bin Peng, Sanja Fidler, *Physics-based Image Generation Using One Or More Neural Networks*, US Patent, 2023.

Mohamed Hassan, Yunrong Guo, **Tingwu Wang**, Michael Black, Sanja Fidler, Xue Bin Peng, *Synthesizing Physical Character-Scene Interactions*, SIGGRAPH, 2023.

Kevin Xie, **Tingwu Wang**, Umar Iqbal, Yunrong Guo, Sanja Fidler, Florian Shkurti, *Physics-based Human Motion Estimation and Synthesis from Videos*, International Conference on Computer Vision, ICCV, 2021.

Tingwu Wang, Yunrong Guo, Maria Shugrina, Sanja Fidler, *UniCon: Universal Neural Controller For Physics-based Character Motion*, Arxiv 2020.

Tingwu Wang, Jimmy Ba, *Exploring Model-based Planning with Policy Networks*, International Conference on Learning Representations (ICLR'20).

Jiaman Li, Yihang Yin, Hang Chu, Yi Zhou, **Tingwu Wang**, Sanja Fidler, Hao Li, *Learning to Generate Diverse Dance Motions with Transformer*, Arxiv 2020.

Tingwu Wang, Xuchan Bao, Ignasi Clavera, Jerrick Hoang, Yeming Wen, Eric Langlois, Shunshi Zhang, Guodong Zhang, Pieter Abbeel, Jimmy Ba, *Benchmarking Model-Based Reinforcement Learning*, Arxiv 2019.

Tingwu Wang*, Henry Zhou*, Sanja Fidler, Jimmy Ba, *Neural Graph Evolution: Towards Efficient Automatic Robot Design*, International Conference on Learning Representations (ICLR'19).

Tingwu Wang*, Renjie Liao*, Jimmy Ba, Sanja Fidler, *NerveNet: Learning Structured Policy with Graph Neural Networks*, International Conference on Learning Representations (ICLR'18).

Xavier Puig, Kevin Ra, Marko Boben, Jiaman Li, **Tingwu Wang**, Sanja Fidler, Antonio Torralba, *VirtualHome: Simulating Household Activities via Programs*, Conference on Computer Vision and Pattern Recognition (CVPR'18) (Oral).

Tingwu Wang, Chunxiao Jiang and Yong Ren, *Access Points Selection in Super WiFi Network Powered by Solar Energy Harvesting*, IEEE Wireless Communications and Networking Conference (WCNC'16).

Tingwu Wang, Jinjin Wang, Chunxiao Jiang, Jian Wang and Yong Ren, *Access Strategy in Energy Harvesting Super WiFi Network: A POMDP Method*, IEEE 83rd Vehicular Technology Conference, 2016 (VTC'16).

Work Experience

NVIDIA, Santa Clara, USA — *June 1st, 2025 - Now*
Senior Research Scientist — Generalist Embodied Agent Research

I am the core contributor on Nvidia's Isaac GR00T initiatives in physical AI. I use generative animation foundation models to guide and enable scalable universal human-like robot loco-manipulation.

NVIDIA, Santa Clara, USA — *Mar. 1st, 2022 - Now*
Senior Research Scientist — Digital Human Team

I am the core contributor on Nvidia's projects on next-generation runtime character animation research and development. I use generative AI and foundation models and publish multiple patents and incoming products.

NVIDIA, Toronto, Canada — *Oct. 1st, 2020 - Mar. 1st, 2022*
Research Scientist at Spatial Intelligence Lab (Part-time) — Mentor: Prof. Sanja Fidler

I work on physics-based character animation for natural and physically correct motions using reinforcement learning and graph neural networks. My work leads to several published top-tier research publications and patents.

NVIDIA, Toronto, Canada — *May 1st, 2019 - Oct. 1st, 2020*
Student Research Intern at Spatial Intelligence Lab (Part-time) — Mentor: Prof. Sanja Fidler

Skills

Programming Languages: C++, Matlab, Python, Verilog, Java, Bash, Cython, Javascript

Project / Lib Experiences: Ubuntu, Raspbian, OpenWrt, Tensorflow, PyTorch, LibTorch C++, Caffe, CUDA, Django, Pixar USD, TensorRT, Maya, Omniverse, Unreal Engine, Pytorch Lightning, ROS, Unitree SDK

Services

Reviewer for ICLR, ICML, NeurIPS, SIGGRAPH, AAAI, UAI, ICCV, ECCV, CVPR, SIGGRAPH-ASIA, TMLR, ICRA, CORL, EUROGRAPHICS — *2016 - Now*

Teaching

Department of Computer Science, University of Toronto:

Teaching Assistant for CSC 420, Image Understanding	*Fall Semester, 2016*
Teaching Assistant for CSC 320, Introduction to Visual Computing	*Winter Semester, 2017*
Teaching Assistant for CSC 411, Introduction to Machine Learning	*Fall Semester, 2017*
Teaching Assistant for CSC 411, Machine Learning and Data Mining	*Winter Semester, 2018*

Teaching Assistant for CSC 2541, Deep Reinforcement Learning *Fall Semester, 2018*
Teaching Assistant for CSC 2621, Reinforcement Learning in Robotics *Winter Semester, 2020*