Qingyang Tan

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🔍 Research Interests

Computer Graphics, Computer Vision, Robotics, Machine Learning

🎓 Education

University of Maryland, College Park (UMD), MD, U.S.   2018 – Present
Ph.D. Student in Computer Science   Advisor: Prof. Dinesh Manocha   GPA: 4.0/4.0

University of Chinese Academy of Sciences (UCAS), Beijing, China   2014 – 2018
B.Eng. in Computer Science and Technology   GPA: 3.9/4.0   Rank: 1/61

Massachusetts Institute of Technology (MIT), MA, U.S.   2017
Special Student in EECS   GPA: 5.0/5.0

✍ Experience

Robot Navigation System
UMIACS, UMD MD, U.S.   May 2019 – Present
Research Assistant   Advisor: Prof. Dinesh Manocha

- Implemented a navigation system using deep reinforced learning
- Unified global and local observation

Cloth Simulation through Neural Network
UMIACS, UMD MD, U.S.   June 2018 – Present
Research Assistant   Advisor: Prof. Dinesh Manocha

- Implemented feature to vertex neural network layer to enhance cloth embedding accuracy
- Added physics-based loss to achieve more deformation details
- Predicted cloth deformation sequence using stateful recurrent neural network

Recognition of Isolated and Continuous Sign Language
Institute of Computing Technology (ICT), CAS Beijing, China   Sept. 2017 – June 2018
Bachelor Thesis   Advisors: Prof. Xilin Chen, Prof. Xiujuan Chai

- Developed end-to-end and multi-task framework to classify sign language video
- Designed spatial and temporal attention residual learning

Geometry Deep Learning on Shape Deformation
ICT, CAS Beijing, China   May 2016 – Sept. 2017
Research Assistant   Advisors: Prof. Lin Gao, Prof. Yu-Kun Lai, Prof. Shihong Xia

- Combined neural network and intrinsic mesh feature to analysis and generate 3D data
- Defined new tunable parameters for the network to capture most important deformations in certain dimensions
- Applied graph-based Convolutional Neural Networks (CNN) on the irregular 3D mesh surface
- Added distance-based sparsity constraint to autoencoder framework

✈ Publications

Realtime Simulation of Thin-Shell Deformable Materials using CNN-Based Mesh Embedding

     Qingyang Tan, Zherong Pan, Lin Gao, Dinesh Manocha
     IEEE Robotics and Automation Letters (**RA-L**), 2020
     International Conference on Robotics and Automation (**ICRA**), 2020

Variational Autoencoders for Deforming 3D Mesh Models

     Qingyang Tan, Lin Gao, Yu-Kun Lai, and Shihong Xia
     IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018

Mesh-based Autoencoders for Localized Deformation Component Analysis

     Qingyang Tan, Lin Gao, Yu-Kun Lai, Jie Yang, and Shihong Xia
     AAAI Conference on Artificial Intelligence (**AAAI**) (Spotlight), 2018

⚙ Skills

- Hands on experience of Machine Learning and Neural Network libraries including TensorFlow, PyTorch, scikit-learn, Theano, Caffe
- Fluent in C, Matlab, Python
- Knowledge of SQL, Verilog, HTML

👥 Academic Service

- AAAI Reviewer 2020
- ICCV Reviewer 2019
- CVPR Reviewer 2019 / 2020
- UMD CS Graduate Program Admission Reviewer 2019 / 2020

♡ Honors and Awards

Beijing Excellent Graduate	June 2018
UCAS Excellent Graduate	June 2018
UCAS Excellent Bachelor Thesis	June 2018
UCAS First-Class Academy Fellowship	Oct. 2015 / Oct. 2016 / Oct. 2017
UCAS Excellent Undergraduate Research-Intern Report	Nov. 2015 / Apr. 2016

ⓘ Miscellaneous

- Languages: English - Fluent, Mandarin - Native speaker
- Hobbies: Swimming, Science Fiction
- Extracurricular Activities:

– Asian International Model United Nations, Peking University, Beijing, China	Apr. 2016
– Editor for UCAS Undergraduate Social Platform, UCAS, Beijing, China	Sept. 2015 – June 2016
– Volunteer Science Teacher, Hua-Ao School, Beijing, China	Oct. 2014 – Jan. 2015