NENG QIAN

Shanghai, China

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EDUCATION

RWTH Aachen University, Germany *October 2017 - June 2020*
Master of Science in Computer Science Grade: 1.2, Excellent

National TsingHua University, Taiwan *September 2015 - February 2016*
Exchange Student in Electrical Engineering. Grade: 87/100.

Beijing Institute of Technology, China *September 2013 - June 2017*
Bachelor of Engineering in Electrical Engineering. Grade: 88/100. Rank top 15%

SKILLS

Programming	C/C++, Python, OpenGL, OpenCV, Pytorch
Tools	Git, CMake, MeshLab, Blender, ROS, Maya, UnrealEngine

EXPERIENCE

Mocap Animation Engineer at Mihoyo, Shanghai May 2023 - Now
Optical Mocap System Development in Motionbuilder

· Participated in development of a tool for retargeting the lower body of motion capture actors to game characters. The solution performs global optimization across the entire animation, restoring lower body poses (such as leg bending and straightening) and correct foot positioning, while ensuring a smooth, jump-free final result. This global solver is implemented by Pytorch.

· Developed and maintained an internal IK solver based on Jacobian optimization. Implemented various constraints, such as distance and direction, and resolved several challenging bugs.

· Experienced with various 3D DCC tools and 3D animation technologies.

Animation Engineer at NExT Studio, Shanghai Oct 2020 - May 2023
Animation Pipeline Development in Maya and UE

· Worked closely with animators, riggers and artists to create realistic 3D human characters. Participated in development of a pipeline for transferring facial rigs, including blendshape based facial rigs and joint based facial rigs,to arbitrary human faces. Techniques such as RBF interpolation, gradient based expression Transferring, SSDR were applied. Also Developed interactive tools in Maya for artists to edit the facial rig.

· Developed blueprint/C++/Python tools in Unreal Engine for production, including Alembic file IO, etc.

· Obtained working experience with industry level (body and face) motion capture system.

Master Thesis Student at Max Planck Institute for Informatics May 2019 - May 2020
Hand Tracking and Reconstruction

· Extended the MANO hand model to the appearance space. Non-rigid ICP is applied to register the MANO mesh with input hand scan mesh which contains hand texture. The appearance space is then modeled by PCA which is applied on a set of the texture atlas.

· Enabled the **first time** a novel photometric loss in hand reconstruction problem. A deep neural network was used as encoder to regress the parameters for the hand geometry and our hand appearance model. Pytorch3D was used as the differentiable renderer. Enabled the first time a method to reconstruct hand geometry and appearance from single RGB image at the same time.

· This work has been accepted by **ECCV 2020**.

Student Assistant at Computer Vision Group, RWTH Aachen   May 2018 - April 2019
Mobile Robot Perception System

· Built up a detection based 3D pedestrian tracking system in a mobile robot platform with ROS.
· Applied TensorRT FP16 model to accelerate the inference of YoloV3 network, which effectively increase its frame rate from 10 HZ to 20 HZ.
· The whole pipeline runs in the Nvidia Jetson Xavier embedded platform with a 15HZ frame rate.

PUBLICATION LIST

· Neng Qian, Jiayi Wang, Franziska Mueller, Florian Bernard, Vladislav Golyanik, and Christian Theobalt. HTML: A Parametric Hand Texture Model for 3D Hand Reconstruction and Personalization. In *Proceedings of the European Conference on Computer Vision (ECCV)*. Springer, 2020
· Jiayi Wang, Franziska Mueller, Florian Bernard, Suzanne Sorli, Oleksandr Sotnychenko, Neng Qian, Miguel A. Otaduy, Dan Casas, and Christian Theobalt. RGB2Hands: Real-Time Tracking of 3D Hand Interactions from Monocular RGB Video. *ACM Transactions on Graphics (TOG)*, 39(6), 12 2020

SELECTED PROJECTS

Particles based Fluid Simulation   C++, Eigen, OpenGL

· Implemented a particle-based fluid simulation system from scratch. Implemented the Marching Cube algorithm to off-line reconstruct fluid surface for visualization. Implemented a screen-based fluid surface render in OpenGL, which is able to reconstruct the fluid surface in real-time.

RELATED COURSES

Computer Vision, Pattern Recognition, Computer Graphic, Object-Oriented Software Construction, Designing Interactive Systems, Data Communication, Embedded System, Signal Processing.