Jiechang Guo

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Technical Skills

Languages: C/C++, C#, Python
Tools: OpenGL, Unity3D, OpenSceneGraph, OpenCV, Pytorch, TensorFlow, glm, Eigen, Fbx Sdk, ImGui, PyQt, SMPL, VRTK, VTK, Git, SVN, Cmake, anaconda, Linux
Keywords: Computer Graphics, 3D Animation, Rendering, VR, AR, Computer Vision, Visualization, Machine Learning, NLP

Experience

ArcSoft Corporation Limited Hangzhou, China
3D Graphics Software Engineer 04/2018 – 07/2021

Real-Time Body Tracking and Motion Retargeting 04/2018 – 07/2021
- Developed algorithm using C/C++ for calculating body animation from 3d points with pose filter
- Developed animation optimization algorithm using C/C++ for motion retargeting of the given character, solving mesh penetration issue, physic simulation on hair
- Developed testbed using OpenGL, test tool using python, real-time demo using Unity3D
- Developed Unity3D tools for editing the effect of hair animation, annotating training data
- Integrated into Samsung Galaxy S and Z Flip series' camera app, provided on-site support for Samsung in South Korea

Auto Joint Binding and Animation 03/2019 – 07/2019
- Developed algorithm using C/C++ for embedding template humanoid skeleton in 3D scanned model, calculating mesh skinning, and retargeting animation
- Developed testbed using OpenGL
- Integrated into Samsung Note 10

Real-time AR Application Interaction with Depth Map 01/2021 – 03/2021
- Developed Unity3D mobile application integrated with AR SDK for processing raw depth map
- Generated AR features using HLSL shader including 3D cursor, real-time depth mesh generation, hit test, and occlusion

Skeleton Animation Projects 04/2018 – 07/2021
- Developed skeleton animation driven algorithm C++ SDK
- Developed an Fbx previewer using C++ and Fbx SDK for the UX team to preview and export the character animation and face blendshape.
- Developed animation module of the graphic engine, including blend tree, animator state machine features

Projects

Research on Butterfly Pose Estimation and Animation | *at CGIM lab,UH* 08/2022 – present
- Goal: estimate butterfly pose from video and apply to butterfly animation
- Exploring the method of human pose estimation and adapting to butterfly
- Synthetic training data using physic simulation

Computer Vision Course Projects | *at UH* 01/2023 – present
- Applied transfer learning technique on a pre-trained ResNet50 CNN model to perform classification for recognizing images of horses and camels using Tensorflow
- Built a CNN model from scratch to detect handwritten digits with CNN using PyTorch and Tensorflow
- Face Detection in Large Distances

Natural Language Processing Course Projects | *at UH* 08/2022 – 12/2022
- Applied text representation techniques and Logistic Regression model to classify informative/uninformative English tweets using Scikit-learn and PyTorch
- Implemented sequence tagging architectures for named entities recognition (NER) task using conditional random field model
- Applied BERT model for multiword expressions detection, supersense tags prediction, and NER task

Visualization Course Projects | *at UH* 08/2022 – 12/2022
- Information data visualization using Pandas, Matplotlib
- Scientific data visualization using VTK for 2D, 3D scalar field and steady vector field
- Developed direct volume rendering application in VR on Oculus Quest2 using Unity3D

User Interface Research on Interactive Technology of 3D Models | *at HDU* 10/2016 – 02/2018
- Designed and developed 3D interaction for the 3D model in virtual space via HTC Vive Controllers, Tracker, and 2D multi-touch-based large display, compared with the traditional mouse and keyboard input
- Performed user study, published paper, and gave a presentation at the University of Bournemouth in the UK

Education

University of Houston Houston, TX
M.S of Computer Science 08/2022 – 05/2024(expected)
Hangzhou Dianzi University Hangzhou, China
M.S of Digital Media Technology 09/2015 – 04/2018
Jiaxing University Jiaxing, China
B.S of Computer Science 09/2011 – 06/2015

Publication

J Guo. Research on Interactive Technology of 3D Models under Multiple VR Devices [D]. Hangzhou Dianzi University, 2018
J. Guo, Y. Wang, P. Du, and L. Yu. "A Novel Multi-touch Approach for 3D Object Free Manipulation". Next Generation Computer Animation Techniques: AniNex Workshop 2017, Bournemouth, UK

Award

The 2014 Year China National Scholarship
The 2015 Year Outstanding Graduate in Zhejiang Province
4th National College Student E-Commerce Challenge 3rd Prize
Zhejiang Province 10th "Challenge Cup" Competition 3rd Prize
The 2019 Year Best Employee Finalist Award from ArcSoft