RAN LUO

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lrquad.github.io

EDUCATION

University of New Mexico *Aug. 2014 - Present*
Ph.D. Candidate in Electrical and Computer Engineering

Beihang University (BUAA) *Sep. 2010 - July. 2014*
B.S. in Software Engineering

EXPERIENCE

University of New Mexico Aug. 2016 - Present
Research Assistant *Albuquerque,NM*

· My interests focus on computer graphics and machine learning. My research topics includes deformable model, physics-based animation/simulation, and machine learning.
· Research results are published in IEEE Transactions on Visualization and Computer Graphics, ACM Transactions on Graphics, and IEEE Virtual Reality.

Samsung Research America May. 2019 - Aug. 2019
Intern *Plano, TX*

· Developed a robust automatic rigging method for arbitrary 3D scanned human models.
· Contributed to algorithm design, development and demo.
· Won the second place of Intern Poster Competition in the company.

Apple Inc. June. 2018 - Aug. 2018
Technology Development Intern *Cupertino, CA*

· Developed algorithms and applications for a confidential machine learning project.
· Contributed to data collection, data generation, training, and live demo development.

University of New Mexico Aug. 2014 - June. 2016
Teaching Assistant *Albuquerque,NM*

· Worked as a TA in ECE412: Computer Graphics.
· Worked as a grader in ECE231: Intermediate Programming.

TECHNICAL STRENGTHS

Computer Languages	C/C++, Python, MATLAB
Package	OpenGL, Tensorflow, Keras, Eigen, Qt, ROS, Gazebo
Software & Tools	Autodesk Maya, Blender

PUBLICATIONS

L. Lan, **R. Luo**, M. Fratarcangeli, W. Xu, H. Wang, X. Guo, J. Yao, Y. Yang, "Medial Elastics: Efficient and Collision-ready Deformation via Medial Axis Transform", **ACM Transactions on Graphics**, 2020.

R. Luo, W. Xu, T. Shao, H. Xu, and Y. Yang. Accelerated Complex Step Finite Difference for Expedient Deformable Simulation. **ACM Transactions on Graphics**, Siggraph Asia 2019.

R. Luo, W. Xu, H. Wang, K. Zhou, and Y. Yang. Physics-based Quadratic Deformation Using Elastic Weighting. **IEEE transactions on visualization and computer graphics**, 24(12):3188-3199, 2018.

R. Luo, T. Shao, H. Wang, W. Xu, X. Chen, K. Zhou, and Y. Yang. NNWarp: Neural Network-based Nonlinear Deformation. **IEEE transactions on visualization and computer graphics**, 2018.

R. Luo, Q. Fang, J. Wei, W. Lu, W. Xu, and Y. Yang. Acoustic VR in the Mouth: A Real-time Speech-driven Visual Tongue System. In 2017 **IEEE Virtual Reality (VR)**, pages 112-121. IEEE, 2017

R. Luo, L. Zhu, W. Xu, P. Kelley, V. Svihla, and Y. Yang. Interactive Design and Simulation of Tubular Supporting Structure. **Graphical Models**, 80:16-30, 2015

PROJECTS

Human Body Automatic Rigging System   June. 2019 - Aug. 2019
Samsung Research America

Developed and designed the algorithms for a robust automatic rigging system. Presented the poster and demo and won the second place of the Intern Poster Competition in SRA.

Python, *OpenDR*, *OpenPose*, *SMPL*

LoboFEM: A C/C++ Library and Software Interface   Aug. 2015 - Feb. 2020
University of New Mexico

· Independently built a C/C++ physics engine for three-dimensional deformable object simulation. It provides a framework to manipulate, simulate and render single or multiple 3D meshes. The engine is easy to extend and modified. Now it has 10+ different kinds of simulation methods.

C++, *Python*, *OpenGL*, *Qt*

NNWarp: A Neural Network Based Nonlinear Deformable Simulation Framework   Aug. 2016 - May. 2017
University of New Mexico

· NNWarp is a highly re-usable and efficient neural network (NN) based nonlinear deformable simulation framework.

C++, *Python*, *Tensorflow*

A Real-Time Speech-Driven Visual Tongue System   Aug. 2016 - May. 2017
University of New Mexico

· An acoustic-VR system that converts acoustic signals of human language (Chinese) to realistic 3D tongue animation sequences in real time.

C++, *Python*, *Tensorflow*, *Matlab*

An Interactive Nonlinear deformable simulation system   Aug. 2015 - May. 2017
University of New Mexico

· A spatial reduction framework for simulating nonlinear deformable objects interactively. This system provides multiple weight functions to compute blended quadratic transformations from frames.

C++, *OpenGL*, *Qt*